AN URBAN INSTITUTE PAPER ON WOMEN AND FAMILY POLICY

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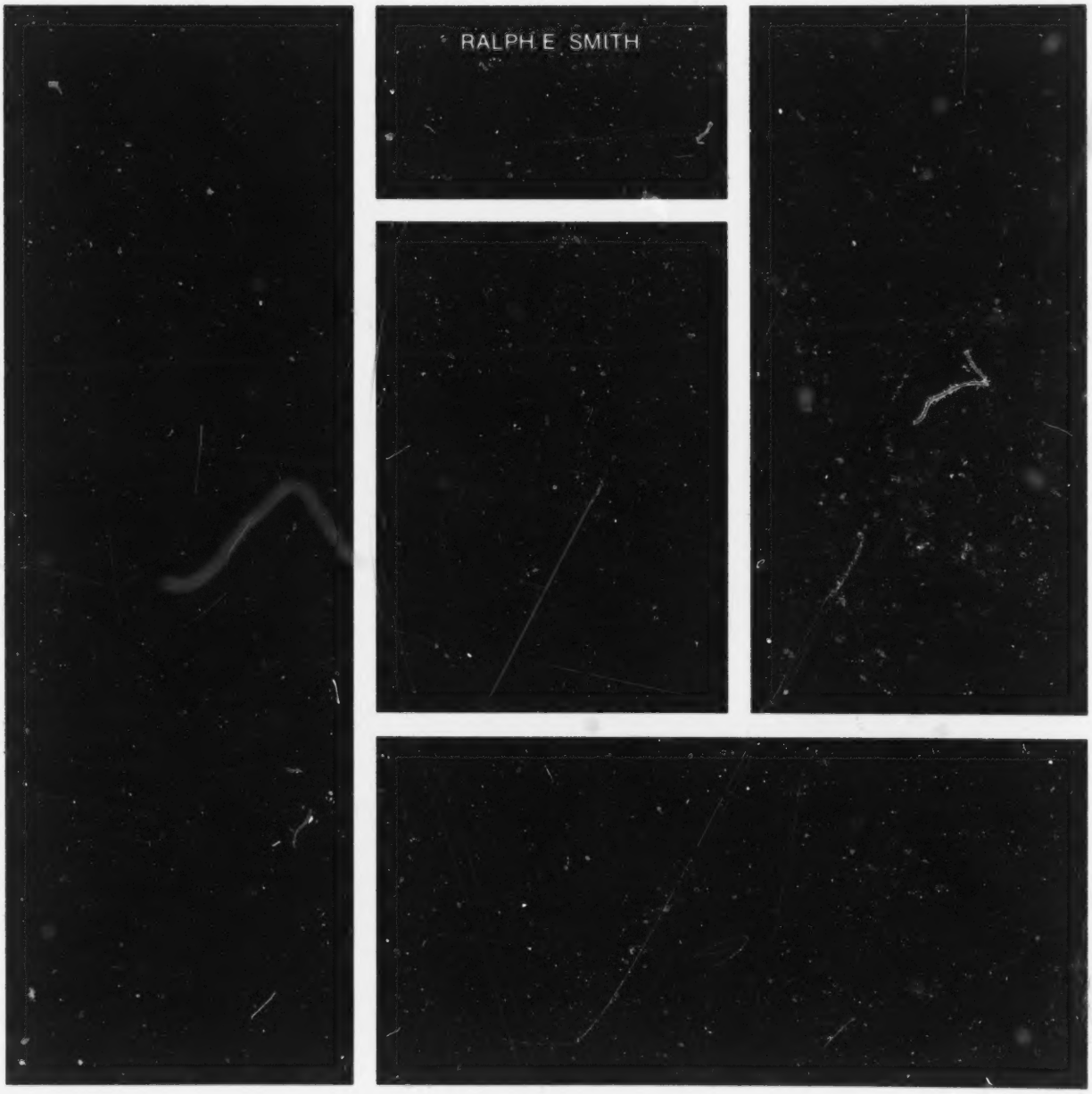
Women in the Labor Force in 1990

RALPH E. SMITH



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RALPH E. SMITH

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ACKNOWLEDGMENTS

This study was undertaken to improve the knowledge base for forecasting the growth and characteristics of the female labor force through the next decade. At various points this inquiry led beyond borders which I, as an economist, was taught never to cross. I was fortunate in being able to draw upon the expertise of three sociologists to work the other side of the border. Dr. Linda J. Waite, Department of Sociology, University of Illinois at Champaign-Urbana, analyzed the effects of sex-role attitudes and marital and child status on the future growth of the female labor force (Chapter 4 and Appendix A). My colleague, Dr. Sandra L. Hofferth, wrote the chapter on the implications for child care policy of the increased labor force participation by mothers of young children (Chapter 7). Dr. George Farkas, Abt Associates, Inc., examined the applicability of cohort models to the labor force projection problem (Appendix B).

I also would like to acknowledge the cooperation of many members of the staff of the Bureau of Labor Statistics. Discussions with them about projection methods were quite helpful, as were unpublished tabulations and backup data from their 1976 projections.

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Ralph E. Smith
Principal Investigator

SUMMARY

The percentage of women participating in the labor force has grown rapidly in recent years. In 1977, nearly half of all women age sixteen and over were working or looking for work. Past projections of labor force growth by the Bureau of Labor Statistics (BLS) and others have repeatedly underestimated women's participation. The major purpose of this study is to assist the Department of Labor in improving its projections of future labor force growth and to anticipate some of the policy issues that will arise because of women's continued movement into the labor market. Three questions are considered. First, what can be done to improve the accuracy and usefulness of the official projections of the female labor force? Second, how rapidly will the female labor force grow over the next decade? Third, what are the implications of this anticipated growth for the formulation of public policies, especially as they relate to the Department's activities?

The major findings and implications of this study are as follows:

Projection Methods

--The accuracy and usefulness of labor force projections could be improved by projecting participation rates by age, marital status, and family status, rather than by age alone.

--Participation rate trend estimates should not be tapered unless there is a substantive basis for expecting a different path.

--Reports on labor force projections should include a moderate range which reflects the sensitivity of the estimates to the choice of estimation periods and other critical assumptions.

--Projections should continue to be reviewed periodically and, when necessary, revised. The new projections should then be quickly distributed, and if they have been used as inputs to other projections, these too should be reviewed.

--Behavioral models that incorporate the causes of labor force growth should be used to supplement the trend projections, but cannot yet be used to replace them.

Female Labor Force Growth

--Based on the assumptions that there are no major changes in the marital and family composition of the female population within each age group, and that the participation rate trend estimated for each age-marital-family status group for 1964-1977 continues unabated, about 52 million women will be in the labor force in 1990--an increase of about 1 million per year.

--Nearly all of the projected additions to the female labor force will be within the age group twenty-five to fifty-four, most will be married, and the majority will have minor children.

--The projections would be somewhat higher if a shorter estimation period was used, or if it was assumed that the percentage of women with young children would continue to fall; and the converse also holds.

--These projections are consistent with projections based on behavioral equations in which it is assumed that real wages will grow by about 2 percent per year, that there will be no change in the relative wages of women, and that there will be a moderate increase in the acceptability of women's combining paid labor force activities with familial roles.

--Much more rapid growth of the female labor force should be anticipated if the gap between women's and men's wages begins to narrow, or if attitudes about the appropriate activities for men and women in our society continue to change as much as they have over the last decade.

Policy Implications

--Public policies in a number of areas will be affected by and, in turn, will affect the growth of the female labor force over the next decade. Failure of policymakers to anticipate the continued movement of women into the labor force will result in poor planning in a wide variety of activities.

--Unless the expansion of the female labor force is anticipated, macroeconomic policies will inadvertently be aimed at the wrong targets. The growth of the female labor force expands the economy's capacity and, at the same time, necessitates a higher rate of employment expansion to achieve a given unemployment rate reduction.

--Employment and training activities can play an important part in helping women--particularly those lacking relevant experience and training--make the transition from home or school to work. The extent to which women will be helped by these programs depends in part on the criteria used to determine who is admitted and which types of services are provided. Married women will be more likely to be admitted if the eligibility criteria relate to individual employment status rather than to family income. Program planners should anticipate that women will still need help in entering predominantly male occupations.

--The continued growth in the number of two-earner and single-parent families will increase the demand for jobs with flexible and part-time schedules (especially when those families have young children). An important policy issue will be how to encourage the growth of alternative work schedules without perpetuating occupational segregation.

--Expansion of child care services provides another means of helping families cope with the problems associated with balancing paid work in the labor force with unpaid work in the home. The sharp rise that is anticipated in the number of working mothers is likely to increase the need for child care services and simultaneously decrease the number of providers of low-cost, at-home care.

--The growth of two-earner families will also generate more pressure to change provisions of the personal income tax and Social Security systems that put two earners at a disadvantage compared with one-earner couples. Problems within these systems arise because both treat people as members of family units rather than as individuals. The unemployment insurance system, for the most part, ignores marital and family status in the determination of eligibility and benefit levels. Proposals to apply income conditions to eligibility, or to tax benefits if family income is above specified levels, would change this characteristic of the unemployment insurance system.

PART I

THE PAST AS A GUIDE TO THE FUTURE

This is the final report of a study undertaken for the Employment and Training Administration, U.S. Department of Labor, to examine the determinants of the future growth of the female labor force. The rapid increase in the number of women working or looking for work in the paid labor market has been one of the most important developments in the U.S. economy since World War II. Over the past three decades, six out of every ten additions to the labor force have been female. In 1947, one-third of the working-age female population was in the labor force. Today, one-half is there. The feminization of the labor market has been greeted with enthusiasm by those who see it as a liberating step for women or as a way of increasing the productive capacity of the nation. Others see it as a threat to traditional values or as a needless burden on a labor market already unable to provide enough jobs.

No matter how one views this development, it is clear that it has important consequences for the economy and for society in general. It should also be clear that the effects are more likely to be favorable if the growth in the labor force is anticipated and planned for. This often has not been the case. The main source of labor force projections is the Bureau of Labor Statistics (BLS). Its past projections have repeatedly underestimated future growth.

The research on which this report is based focused on three questions. First, what can be done to improve the accuracy and usefulness of BLS projections of the female labor force? Second, how rapidly will the female labor force grow over the next decade? Third, what are the implications of this anticipated growth for the formulation of public policies?

The first two questions are, of course, closely related. To answer them, two parallel paths were followed. One begins with an analysis of the projection techniques used by BLS in 1976 and their projections for the year 1990 (Part I, Chapter 1). These techniques involved the use of past trends in participation rates as a guide to future needs. Improvements within this general framework are recommended and used to produce new projections of the size of the female labor force in 1990 (Part I, Chapter 2).

The second path involves studies reported on in Part II, beginning with an analysis of the reasons why the female labor force has been expanding.

Conditional forecasts of the growth of the female labor force are then provided, based on estimates of the impact of changes in economic, attitudinal, and demographic conditions on labor force decisions. This technique is not as well developed as that of trend extrapolations, but offers greater potential for understanding the conditions under which one can correctly assume that past growth will continue.

Both paths lead to the conclusion that the participation rate of women in the labor force will continue to grow through the next decade. A participation rate of about 55 percent in 1990 for females age sixteen and over seems reasonable. This would mean that 52 million women would be working or looking for work--over 12 million more than were in the labor force in 1977. Part III of this report presents some of the policy implications of this anticipated growth. The specific issues examined include the implications of more women in the labor force for macroeconomic and labor market policies, including policies to improve women's relative position in the labor market; the implications of more two-earner families for various tax and transfer programs (Chapter 6); and the implications of more mothers in the labor force for child care policy (Chapter 7).

CHAPTER 1. TREND EXTRAPOLATIONS

The BLS Projections

This chapter summarizes the methods used by the Bureau of Labor Statistics (BLS) staff in 1976 to project the size of the female labor force in 1990, notes the key assumptions on which the projections are made and the basis for these assumptions, and examines the extent to which the 1990 projections are dependent on them. It is concluded that two parts of the BLS projection procedure involve arbitrary assumptions and that minor variation in them results in major variation in the projections of the percentage of women who will be in the labor force in the year 1990. It is also demonstrated that a substantial part of the increases in some age groups' participation is associated with shifts in the marital and family composition of the population.

In late 1976, just as the present study was begun, a new set of projections of the labor force, disaggregated by sex and age, was issued by BLS providing total (including military) labor force projections for the years 1980, 1985, and 1990 (Fullerton and Flaim, 1976). These were a revision of projections made in 1973 (Johnston, 1973). The earlier projections called for a total labor force in 1990 of 112.6 million people, including 43.7 million women. The new figures projected 115.9 million participants, including 48.7 million women. In only three years, the 1990 estimates for women increased by 5 million participants. The difference is associated with a sharp upward revision in the percentage of women projected to be in the labor force in future years. The earlier estimate called for a participation rate of 45.9 percent in 1990--a rate that had already been exceeded in 1975. The new one called for a participation rate of 51.5 percent.

The explanation that accompanies each set of BLS projections makes it clear that there is a substantial degree of uncertainty with regard to the projections, especially concerning the future course of each sex-age group's participation rates. The projections released in 1976 included a discussion of what were viewed as the most important assumptions about future events that would affect the accuracy of the participation rate projections:

> . . . that there will be no drastic departure from previous trends in the propensity of the various population groups to seek work; that the general demand situation will follow the basic trends of the post-World War II era; that there will be no major wars or great social disturbances; that legislation will not alter the conditions

under which individuals choose to enter or remain out of the labor force; and, finally, that there will be no substantial changes in prevailing definitions of labor force, employment, and unemployment (Fullerton and Flaim, 1976).

The first assumption, involving the continuation of previous trends, turns out to be open to varying interpretations. It provides a general framework for making projections, but gives no specific guidance regarding how to estimate the trends and how to apply them to future years. Thus, three specific issues had to be settled: (1) the length of the historic period to be used to estimate the trends and the functional form to be estimated; (2) the starting values to be used in the projections; and (3) the procedure to be used for extrapolating the estimated trends.

For most of the thirteen female age groups for which projections were made, these issues were resolved as follows:

First, linear trends were estimated from annual averages of the group's participation rates over the twenty-one-year period, 1955 through 1975. The form of the estimating equation was: group participation rate = constant + trend coefficient (time), where time is a variable that increases by one each year and its coefficient is an estimate of the average annual increase in the participation rate of the group.

Second, the base period of the projections was set at 1974, with the participation rate used in 1974 calculated by taking the average of the rates for the group in 1973, 1974, and 1975. This was done to minimize the impact on the projections of an atypical observation in any single year.

Third, the projections over the sixteen-year period, 1975 through 1990, were made in two steps. Projections were made for each year by incrementing with the trend value, estimated from the historic data; then, the annual increase was "tapered" by gradually reducing the rate of change to zero with an exponential decay formula. The adjustment was made such that the rate of change would decrease to zero by the year 1995 if it was carried out that far, with most of the adjustment occurring in the latter part of the projection period.

Exceptions to this procedure were made for projecting the participation rates of women between the ages of fifty-five and sixty-four, because trends for this group have shifted in recent years. Their participation rate increased by almost eleven points between 1955 and 1969, but then began to decline. For the age group fifty-five to fifty-nine, the slope of the trend term estimated for the entire period was reduced by half, and for the age group sixty to sixty-four the rate was held constant over the entire projection period.

To produce projections of each group's labor force size, the projected participation rates were multiplied by estimates of the corresponding population size provided by the Bureau of the Census. Minor adjustments were then made for the number of people within each age group expected to be in institutions. Because they involve people who have already been born, the population projections can be made fairly accurately, being dependent only on the accuracy of the mortality and immigration rates used by the Census and on the original population counts.

The results of this procedure for the years 1980, 1985, and 1990 are shown in Table 1, along with the actual numbers for 1975 (the last year available when the projection was made) and 1977. Between 1975 and 1990, the participation rate of women age sixteen and over is projected to increase by five percentage points. Together with an increase of 15 million in the size of their non-institutional population, this generates a net addition to the labor force of nearly 12 million women over this fifteen-year period.

Before analyzing the methods that were used to produce these projections, a few observations about the results need to be made. First, notice that nearly all of the increase in the size of the female labor force expected over this fifteen-year period is concentrated in the central group, ages twenty-five through fifty-four. The labor force within the age group sixteen to twenty-four is expected to grow by only 200,000, as their projected increase in participation rates barely offsets the decline in their population. At the other end of the age scale, the number of women fifty-five and over expected to be in the labor force will grow by about 500,000, as a growing population and an increased participation rate for women ages fifty-five to sixty-four offset the impact of a small projected decrease in participation among women ages sixty-five and over. In sharp contrast, the labor force of the prime-age group (twenty-five to fifty-four) is expected to increase by 11 million women, resulting from an increase of 13 million in their population and an increase in their participation rate from 55.0 percent in 1975 to 62.6 percent in 1990.

Another point illustrated by this table is that a strikingly large proportion of the participation rate increase that was projected for the fifteen-year period occurred in the first two years. Forty percent of the participation rate increase projected for the females ages sixteen and over for the entire fifteen-year period had already occurred by 1977. In fact, the 48.5 percent participation rate in 1977 was the projected rate for 1980. The major problem was that the participation rate of prime-age women grew much faster than implied by the BLS projections. By 1977, 58.4 percent of this group was

TABLE 1

BLS projections of the female labor force, by age (in thousands, except as indicated)

	Total noninstitutional population, July 1[a]					Total labor force annual averages[a]					Labor force participation rate (percent)[a]				
	Actual		Projected			Actual		Projected			Actual		Projected		
	1975	1977	1980	1985	1990	1975	1977	1980	1985	1990	1975	1977	1980	1985	1990
Total, 16 and over	80,009	82,577	86,209	90,879	94,686	37,086	40,067	41,771	45,797	48,717	46.4	48.5	48.5	50.4	51.5
16-24	17,778	18,248	18,557	17,203	15,534	10,175	10,905	11,362	11,161	10,375	57.2	59.8	61.2	64.9	66.8
16-19	8,245	8,322	8,180	7,038	6,632	4,059	4,286	4,246	3,782	3,669	49.2	51.5	51.9	53.7	55.3
16-17	4,113	4,115	3,972	3,420	3,089	1,652	1,735	1,712	1,551	1,448	40.2	42.2	43.1	45.4	46.9
18-19	4,131	4,207	4,208	3,618	3,543	2,407	2,551	2,534	2,231	2,221	58.3	60.6	60.2	61.7	62.7
20-24	9,533	9,926	10,377	10,165	8,902	6,116	6,619	7,116	7,379	6,706	64.2	66.7	68.6	72.6	75.3
25-54	39,361	40,613	42,797	47,335	52,020	21,635	23,730	24,664	28,722	32,578	55.0	58.4	57.6	60.7	62.6
25-34	15,531	16,591	18,131	19,990	20,605	8,473	9,877	10,417	12,233	13,100	54.6	59.5	57.5	61.2	63.6
25-29	8,480	8,899	9,480	10,310	10,097	4,838	5,502	5,728	6,667	6,822	57.1	61.8	60.4	64.7	67.6
30-34	7,051	7,692	8,651	9,680	10,508	3,635	4,375	4,689	5,566	6,278	51.6	56.9	54.2	57.5	59.7
35-44	11,621	12,012	13,089	15,908	18,530	6,495	7,156	7,638	9,728	11,683	55.9	59.6	58.4	61.2	63.0
35-39	5,929	6,295	7,129	8,740	9,755	3,256	3,743	4,137	5,343	6,170	54.9	59.5	58.0	61.1	63.2
40-44	5,691	5,717	5,960	7,168	8,775	3,239	3,413	3,501	4,385	5,513	56.9	59.7	58.7	61.2	62.8
45-54	12,207	12,010	11,577	11,437	12,885	6,667	6,698	6,609	6,761	7,795	54.6	55.9	57.1	59.1	60.5
45-49	6,028	5,874	5,607	5,876	7,059	3,372	3,403	3,229	3,491	4,282	55.9	57.9	57.6	59.4	60.7
50-54	6,179	6,136	5,970	5,561	5,826	3,295	3,295	3,380	3,270	3,513	53.3	53.7	56.6	58.8	60.3
55 and over	22,869	23,718	24,855	26,341	27,132	5,276	5,432	5,745	5,914	5,764	23.1	22.9	23.1	22.5	21.2
55-64	10,349	10,649	11,035	11,238	10,671	4,244	4,364	4,628	4,740	4,514	41.0	41.0	41.9	42.2	42.3
55-59	5,470	5,715	5,881	5,689	5,299	2,618	2,746	2,891	2,870	2,703	47.9	48.0	49.2	50.4	51.0
60-64	4,878	4,934	5,154	5,549	5,372	1,626	1,622	1,737	1,870	1,811	33.3	32.9	33.7	33.7	33.7
65 and over	12,520	13,069	13,820	15,103	16,461	1,032	1,065	1,117	1,174	1,250	8.2	8.1	8.1	7.8	7.6
65-69	4,432	4,628	4,748	5,028	5,419	640	673	692	721	768	14.4	14.5	14.6	14.3	14.2
70 and over	8,087	8,441	9,072	10,075	11,042	392	391	425	453	482	4.8	4.6	4.7	4.5	4.4

a. Data for 1977 are from Green et al., "Employment and Unemployment Trends During 1977," Special Labor Force Report 212 (1978), Table A-3; and from Employment and Earnings, Vol. 25, No. 1 (1978), Table 3. All other data are from Fullerton and Flaim, "New Labor Force Projections to 1990," Special Labor Force Report 197 (1976), p. A-2.

in the labor force, which is almost a point higher than the projection for 1980. The largest unanticipated growth was within the age group twenty-five to thirty-four, which increased by five percentage points in two years--more than half the projected increase for the entire fifteen-year period.

For projecting labor force change from one year to the next, of course, one would not use a long-term trend extrapolation. At a minimum, the impact of cyclical variation in job opportunities needs to be accounted for. During the 1975-1977 period, there was a surge in job opportunities which attracted an exceptionally large number of women into the labor force. Nonetheless, the fact that the participation rate of central age females was already higher than the projection for 1980 casts doubt on the validity of the 1990 projection as well.[1]

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1. BLS periodically reviews and revises its labor force projections. After the research for this report was finished, BLS issued a new set of projections, based on assumptions that lead to much larger female labor force growth than had been previously projected (press release, August 16, 1978; and Flaim and Fullerton, 1978). BLS staff were aware of many of the problems discussed in this chapter and made several changes in methods to resolve them (Ryscavage, 1978). These changes are consistent with the recommendations made in Chapter 2 and are a step in the right direction. Nonetheless, the issues raised here are still relevant. Although the new projection methods could not be analyzed in detail at this late date, a few comments about where they differ from the old ones can be made.

The new projections offer a wide range, rather than a point estimate, with the range of labor force levels for women in 1990 considerably above the projected level presented two years ago. Three possible paths are presented, leading to a female labor force in 1990 of between 51.0 and 57.4 million, with 54.3 million women being the "intermediate" projection. This compares with only 48.7 million women in the preceding projection.

The sharp increase in the projection is partly attributable to the growth in the female labor force that occurred during the period since the last projection was made. But most of it appears to be due to three changes in the methods for projecting participation rates. First, although tapering is still used, the formula now assumes that the asymptote will not be reached until the year 2000 (rather than 1995). Second, for some of the projections, a much shorter estimation period is used. In particular, all three of the projections for women between the ages of twenty and forty-four begin with trend estimates from the period 1970-1977 (rather than 1955-1975). For most other groups, two estimation periods are used, 1958-1977 and 1970-1977. As is stressed in the next section, projections of female participation rates in these age groups are extremely sensitive to the choice of estimation periods. Third, the most recent year, 1977, is used as the takeoff point for the projections, whereas the previous projections used a three-year average (1973-1975). Except where otherwise indicated, the analysis of specific BLS projection methods in this report refers to the methods used in the 1976 projections.

A Critique

The problem with these and previous projections is the tenuousness of the assumptions on which they are based. Each of the three steps that was taken to project the participation rates of most of the groups involves an arbitrary decision. First, the selection of the estimation period can--and for many groups does--largely determine the projection result, especially if a linear trend is used. For making projections up to the year 1990, it is not clear how far back one should go, but it is clear that the choice is critical. To illustrate the degree to which the 1990 projections are affected, projections of each group's participation rate were made with trends estimated from several time periods. As would be expected, projections that reflect the trends of more recent years are higher than those using the BLS estimation period. Table 2 reports these results.

The projections reported in this table are untapered trend extrapolations using 1977 as the base year. Therefore, the projections using the BLS estimation period (1955-1975) differ from those reported in the preceding table. The base year choice and tapering are discussed below. Notice that the projected participation rate for the total female population increases substantially as more recent years are given more weight. Projections based on the 1955-1975 period call for 55.3 percent of females age sixteen and over to be in the labor force in 1990. Simply extending the estimation period by two years increases the projected rate by 0.6 percentage points; dropping the earliest five years adds another 1.3 points; and so forth. The difference between using 1955-1975 and 1967-1977 is 3.0 percentage points, which provides a projection range of almost 3 million women in the labor force.

Most of this difference is within the central age group (twenty-five to fifty-four). The BLS estimation period produces a participation rate in 1990 which is six percentage points below that of the 1967-1977 period, a difference of 3 million participants. The younger groups, whose participation has also accelerated in recent years, also have wider ranges. Projections for the older groups, on the other hand, decrease with the use of more recent estimation periods.

The second step, selection of the base period, could also affect the projections to the extent that the implied participation rate for the most recent year differs from the actual rate in that year. However, it is unlikely that the error from using a three-year base period would be very large. The maximum error is the difference between their implied labor force in the

TABLE 2

Labor force projections for 1990, by age, based on alternative estimation periods

Age group	1955-1975		1955-1977		1960-1977		1964-1977		1967-1977	
	Participation rate	Labor force	Participation rate	Labor force	Participation rate	Labor force	Participation rate	Labor force	Participation rate	Labor force
16-17	49.2	1,520	50.1	1,548	54.6	1,687	57.4	1,773	57.2	1,767
18-19	65.0	2,303	66.0	2,338	68.4	2,423	71.4	2,530	71.9	2,547
20-24	79.4	7,068	80.1	7,131	83.0	7,389	84.1	7,487	83.9	7,469
25-34	71.6	14,682	73.4	15,124	77.4	15,948	80.9	16,669	82.9	17,082
35-44	68.4	12,674	69.4	12,860	71.6	13,267	73.1	13,545	73.7	13,657
45-54	62.0	7,988	61.7	7,963	60.4	7,783	60.2	7,757	59.7	7,692
55-64	46.8	4,994	45.8	4,887	43.4	4,631	40.5	4,322	38.1	4,066
65+	6.7	1,102	6.6	1,086	6.3	1,037	6.0	988	5.6	922
Total 16-24	70.1	10,891	70.9	11,017	74.0	11,499	75.9	11,790	75.9	11,783
Total 25-54	67.9	35,344	69.1	35,947	71.1	36,998	73.0	37,971	73.9	38,431
Total 55+	22.5	6,096	22.0	5,973	20.9	5,668	19.6	5,410	18.4	4,988
Total 16+	55.3	52,331	55.9	52,937	57.2	54,165	58.2	55,071	58.3	55,202

third year and the actual labor force. Indeed, for small groups the sampling error associated with any individual year may exceed the error associated with a three-year average.

Third, the decision to taper the projected participation rates introduces the assumption that, contrary to the basic premise, previous trends will not continue. A linear trend extrapolation technique has as its main advantage that it provides a projection of the size of a variable at a point in the future if whatever was causing the projected variable to increase or decrease during the estimation period will continue to occur (and with the same effect) during the projection period. That is, it provides a simple projection of what a group's participation rate would be if "things" continued as they have over the period used to estimate the trend. The tapering procedure needlessly clouds the picture. It is based on the arbitrary assumption that the rate of change will decline to zero by the year 1995. Even though most of the decline will not occur until the latter part of the projection period or beyond it, the impact by 1990 is still substantial. The cumulative impact by 1990 is to reduce the change in each group's participation rate over the projection period by about 20 percent. This reduced the projected size of the female labor force by 1.7 million. Had BLS assumed that the rate of change would decline to zero by the year 2000 instead of 1995, the trend extrapolation would have been reduced by only 13 percent. Again, there is absolutely no basis for deciding which, if any, decay formula to use, and the decision is critical.

Each of the two major decisions--selection of estimation period and whether to assume that the estimated trends will continue unabated--involves a judgment about the underlying behavior that generated past growth. If absolutely nothing is known about the sources of past growth the projector would serve the user best by admitting it and reporting the range of projections that would result from past growth rates, estimated from several time periods, continuing into the future. These results should be modified only if a group's projected rate falls outside of a sensible boundary; for example, no group can have a participation rate of 100 percent, and it is unlikely that any female age group would have a rate that exceeded that of central age males over the next decade.

In Part II, a completely different approach to projections, one in which behavioral relationships replace time trends, is examined. However, much more needs to be learned before a behavioral model could completely replace trend extrapolations. Therefore, it is important to try to at least improve the extrapolation techniques.

One improvement that would not require much of a departure from existing techniques would be to take into account the differences in trends among groups delineated by marital and family status, as well as age. The next section considers this approach.

Changes in Marital and Family Patterns

The preceding discussion suggested that trend extrapolation techniques are inherently arbitrary and that information is needed about the sources of past growth in the labor force, not just about size. One possible modification to improve the extrapolations would be at least to isolate in an age group's participation rate the growth that was due to changes in marital and family patterns. Within an age group, women who are not married are more likely to be in the labor force than women with husbands present. Similarly, among married women, those with no young children are more likely to be in the labor force. In recent years, rising divorce rates, decreasing marriage rates, and decreasing fertility rates have all resulted in more women being in marital and family categories within which participation rates are relatively high. The trends in participation that are estimated for age groups implicitly reflect these shifts, as well as increases in the participation rates within the marital and family categories.

The sharp increase in the participation rate of women in the age group twenty-five to thirty-four in recent years illustrates the value of disaggregating trend projections by marital and family status. Between 1947 and 1964, the participation rate of this group increased by a modest 5.3 percentage points, about three-tenths of a point per year. Between 1964 and 1977, the rate rose from 37.3 percent to 59.5 percent, an annual increase of 1.7 points. Projections based on trends for this age group are extremely sensitive to the selection of the estimation period. As was reported in Table 2, the group's participation rate projected for 1990 was 71.6 percent based on its 1955-1975 trend, and 80.9 percent based on its 1964-1977 trend. One should be hesitant to project a 17-point-per-decade increase over a very long period. But one should also be reluctant to use as a guide to the future a past trend that has already changed. Using a long period that includes both segments only serves to obscure the underlying shift.

Closer examination of the labor force behavior for this age group twenty-five to thirty-four reveals that an important part of the recent increase in participation is associated with shifts in marital and family composition. Among women in this age group, those without husbands present are more likely

to be in the labor force. Furthermore, among those with husbands present, those without young children are more likely to be in the labor force. Between 1964 and 1977, the percentage of this age group married with husbands present decreased from 83.9 percent to 73.7 percent, as the percentage increased both for those who had never married and for those who had married but were currently divorced, separated, or widowed. Meanwhile, among women living with their husbands, a sharp decline in fertility rates reduced the percentage with children under age six from 56.3 percent to 31.9 percent.

To estimate the degree to which the large increase in the participation rate of women ages twenty-five to thirty-four was associated with these marital and fertility patterns, we constructed a hypothetical population which was distributed by marital and family status in 1977 as if there had been no change in the demographic mix since 1964. Next, a hypothetical labor force was calculated by multiplying the number of women within each hypothetical population group by the actual participation rate of the group in 1977. The difference between the actual and the hypothetical labor force size, 1.2 million participants, indicates how many more women within this age group were added to the labor force between 1964 and 1977 because the proportion of women within groups with particularly low probabilities of being in the labor force had fallen. These 1.2 million women were over 7 percent of the population in that age group. In other words, about a third of the twenty-two percentage point rise in the participation rate of this age group is accounted for by changes in the demographic composition of the group. As will be discussed in the next chapter, most of the other two-thirds of the increase is attributable to a sharp increase in the participation rates of the married women within the group, especially among those with young children.

A similar analysis was performed to determine the extent to which recent increases in the participation rate of the entire female population could be traced to demographic shifts. Shifts in populations shares and changes in the participation rates of forty-nine detailed age, marital status, and family status groups were analyzed for the periods 1967-1971 and 1971-1975. In each period, between one-quarter and one-third of the increase in women's participation rate was attributable to population shifts; the rest was due to within-group participation rate increases (Smith, 1977b).

As demonstrated by the patterns for women within the age group twenty-five to thirty-four and by the larger analysis, disaggregation of an age group by marital and family status can provide insight into the behavior that generated past trends, thereby helping to determine the likelihood of these trends

continuing. Since one-third of the increase in the participation rate of women between the ages of twenty-five and thirty-four was due to reductions in marriage and fertility rates, the implicit assumption behind a trend extrapolation for this group is that marriage and fertility rates will continue to fall by the same amount. In other words, the continuation of two sets of trends from the 1960s and 1970s would be implied: further declines in the proportion of the age group that is married or has young children and further increases in the participation rates of women within specific marital and family situations.

Even if one is comfortable with these implicit assumptions, it is still preferable to make them explicit. First, this provides more information to potential users of the projections on which they can base their decisions about whether and how to use them and whether they should modify them. Second, if the separate trends in the participation rates within each group are provided, more information about the future characteristics of the female labor force is available. Third, as new information about marriage and fertility rates becomes available, these facts can more readily be used to modify the original projections.

In the more general case, there is even less reason to expect that past marriage and fertility trends will continue than there is to expect that changes in group-specific participation rates will continue. Fertility rates in particular do not continually decrease, although they may remain low. Indeed, some demographers are suggesting that the decline in fertility rates that began in the 1960s is already over. In the next chapter, a trend extrapolation procedure is introduced that permits the impact of alternative assumptions about future marriage and fertility patterns on labor force projections to be directly estimated.

CHAPTER 2. RECOMMENDATIONS AND NEW PROJECTIONS

Recommendations

Based on the preceding analysis of the methods used by BLS in 1976 and of the role of shifts in marriage and family composition in contributing to women's labor force growth, the following recommendations are offered:

1. As long as trend extrapolations are to be used, the published projections should be based on the direct results of the extrapolations, not after a tapering procedure. Modifications should only be made where there is a reason to expect a different path. For example, adjustments should be made if there has been a shift in the direction of movement in a group's participation rate during the estimation period or if the projected rate for the group is outside a reasonable range (e.g., above that of central age males).

2. The report containing the projections should include a range which reflects the sensitivity of the results to the choice of estimation periods. If there is no basis for selection among the alternatives, the report should state this.

3. Projections should be based on trends in groups delineated by marriage and family status, as well as by age. Census Bureau projections could be used as the basis for developing population estimates within each category. Again, the report should provide estimates of the sensitivity of the projection to alternative assumptions about future marriage and fertility patterns.

4. BLS should begin to develop behavioral models that incorporate the causes of labor force growth in projections. Initial steps might include adding variables that reflect the state of the economy to trend equations and experimenting with cohort models. Appendix B illustrates how a cohort model, which includes a cyclical variable, could be used to make labor force projections. A long-run plan should be developed for improving the Bureau's projection capability.

This chapter provides a new set of projections based on the first three recommendations. Part II examines the state of the art available for implementation of the fourth.

Trend Estimates

The selection of demographic groups and estimation periods was largely determined by the availability of annual participation rate data. Tabulations from the March supplement of the Current Population Survey were available back to 1960, providing the participation rates of seven marital and family status categories within each of five age groups (sixteen to nineteen, twenty to twenty-four, twenty-five to thirty-four, thirty-five to forty-four, and forty-five to fifty-four). For women who were married with spouse present and for other "ever-married" women (that is, women divorced, separated, or widowed), separate participation rates were available for those with no children under age eighteen; for women with children between the ages of six and seventeen only; and for women with children under age six. For women who had never married, there was not sufficient information to disaggregate by child status. Some of the other data were imputed from the published tabulations. For example, some of the published tables contained a classification for women age forty-five and over with children under six years; it was assumed that these women were within the age group forty-five to fifty-four. No new estimates were made for the age group fifty-five and over.

From these data, linear trends in participation were estimated for each of the thirty-five groups for three time periods: 1960-1977, 1964-1977, and 1967-1977. The main set of results reported here is from the middle projections. These assume that the trends of the past thirteen years will continue over the next thirteen years. The choice is arbitrary. An indication of the sensitivity of the projections to the choice of estimation period is provided by comparing the 1990 projections derived from the other two periods.

To produce labor force projections, these participation rates were multiplied by estimates of the size of each group's population in the year 1990. This involved two steps. First, the size of each age group was taken from the Census Bureau estimates used by BLS in their projections for 1990. Second, a set of assumptions was made to distribute the population within each age group across marital and family categories. The main set of projections reported here is based on the assumption that the marital-family mix within each age group in 1990 will be the same as it was in 1977. These are similar to the central projections made by the Census Bureau for 1990 (U.S. Bureau of the Census, 1975a), and appear reasonable. A detailed analysis of the assumptions about future marriage and family patterns appears in Appendix A. The sensitivity of the labor force projections to them is examined at the end of this chapter.

Ordinary least squares regression analysis was used to estimate the linear participation rate trends. The results for the 1964-1977 period are reported in Table 3. For each of the thirty-five groups, the estimated trend, t-statistic on that parameter, coefficient of determination, corrected for degrees of freedom ($\bar{R}^2$) and Durbin-Watson statistic (D.W.) are given. Trend estimates significant at the 95 or 99 percent levels are marked with a single or double asterisk, respectively. In order to permit direct comparison of these estimates with ones that are not disaggregated by marital and family status, weighted trends are shown for each age group, calculated by multiplying each age-marital-family group's trend estimate by its proportion of the age group in 1977 and summing across categories. Immediately beneath the derived trend estimate for the group is the direct estimate of the trend for that age group.

Over half of the trend estimates are significant at at least the 95 percent level. Most of the groups in which it is not significant are very small. Nearly every group of women who are married with husband present has a strong and significant positive trend in participation rates. None of the never-married groups, except teenagers, has a significant trend. None of the groups has a significant negative trend. Very few of the equations had serious autocorrelation problems, which was not the case with the age-only equations. The explanation of the difference is probably that the age equations were depicting marriage and child status patterns that are more serially correlated than the participation rates within each demographic group.

The trend coefficients provide considerable information about the sources of each age group's participation rate growth over this thirteen-year period, although they fall short of explaining the growth. For each age group the estimates indicate which marital-family categories' participation rates have been rising and which have not. Also, comparison of the implied trend for the age group, derived from the separate trends, with the direct estimate of the trend indicates the extent to which group participation rate increases, rather than demographic shifts, were responsible for the overall trend. Once the specific demographic groups responsible for the participation rate increases have been identified, there remains the question of what caused a growing percentage of the women in these groups to participate. This issue is examined in Part II.

Consider, first, the trends for teenage females. Most of the women in this age group (87.3 percent) have not yet married. The participation rate of women who have never married is estimated to have risen by 1.26 percentage

TABLE 3

Female participation rate trends, by age, marital, and family status, 1964-1977
Group participation rate (%) = constant + trend (time)

Group	Trend coefficient (t-statistic)	$\bar{R}^2$	D.W.	Mean participation rate (%)	Population in 1977 (in thousands)	% of age group in 1977	Participation rate in 1977	Projected rate in 1990
AGE 16-19								
Never-married[+]								
Age 16-17	1.261 (14.28)**	0.95	2.00	32.6	3,926	47.3	38.5	54.9
Age 18-19	0.917 (6.36)**	0.80	1.36	53.6	3,322	40.0	57.4	69.3
Married, spouse present								
No children under 18	1.665 (10.92)**	0.90	2.14	48.8	514	6.2	60.5	82.1
Children 6-17 only	Not estimated				5	0.1	60.0	--
Children under 6	0.907 (5.79)**	0.72	2.13	26.0	357	4.3	34.2	46.0
Other ever-married								
No children under 18	0.912 (2.23)*	0.23	1.36	44.3	100	1.2	60.7	72.6
Children 6-17 only	Not estimated				--			--
Children under 6	0.862 (1.27)	0.05	2.27	38.0	78	0.9	35.9	47.2
Implied trend for age group (weighted by 1977 population)	1.124							
Estimated trend for age group	1.003[++]				8,302	100.0		
AGE 20-24								
Never-married[+]	-0.108 (-1.04)	0.01	1.30	70.9	4,438	45.3	70.9	69.5
Married, spouse present								
No children under 18	0.554 (0.66)	-0.05	1.64	69.1	2,070	21.1	81.0	88.2
Children 6-17 only	0.827 (1.59)	0.11	2.37	50.1	58	0.6	56.9	67.7
Children under 6	1.326** (11.22)	0.91	1.81	32.2	2,463	25.1	42.1	59.3
Other ever-married								
No children under 18	-0.040 (-0.06)	-0.08	2.47	74.1	340	3.5	75.1	74.6
Children 6-17 only	3.066** (4.32)	0.58	1.64	61.7	37	0.4	64.9	95.0[a]
Children under 6	0.686*	0.29	1.67	50.9	398	4.1	51.4	60.3
Implied trend for age group	0.445							
Estimated trend for age group	1.351** (38.07)	0.99	1.46	57.9	9,804	100.0		

(continued)

TABLE 3--Continued

Group	Trend coefficient (t-statistic)	$\bar{R}^2$	D.W.	Mean participation rate (%)	Population in 1977 (in thousands)	% of age group in 1977	Participation rate in 1977	Projected rate in 1990
AGE 25-34								
Never-married+	-0.041 (-0.24)	-0.08	1.48	82.0	1,959	12.0	83.7	83.1
Married, spouse present								
No children under 18	1.164 (7.22)**	0.80	2.17	72.8	2,139	13.0	81.5	95.0[a]
Children 6-17 only	1.180 (20.67)**	0.97	2.47	52.0	3,153	19.2	60.4	75.7
Children under 6	1.304 (19.46)**	0.97	1.09	30.1	6,810	41.5	39.2	56.2
Other ever-married								
No children under 18	1.686 (9.16)**	0.87	2.10	77.0	647	3.9	88.9	95.0[a]
Children 6-17 only	0.186 (1.02)	0.00	0.89	72.5	911	5.5	80.3	82.7
Children under 6	0.635 (2.66)*	0.32	1.42	52.9	802	4.9	59.6	67.9
Implied trend for age group	1.021							
Estimated trend for age group	1.646 (20.18)**	0.97	0.33	46.9	16,421	100.0		
AGE 35-44								
Never-married+	-0.349 (-1.95)	0.18	1.15	74.9	599	5.0	73.2	68.6
Married, spouse present								
No children under 18	0.480 (4.72)**	0.62	1.84	60.7	1,420	11.9	64.5	70.7
Children 6-17 only	1.105 (24.2)*	0.98	0.93	50.6	6,355	53.3	58.7	73.1
Children under 6	1.047 (13.2)**	0.93	1.28	29.1	1,537	12.9	37.0	50.6
Other ever-married								
No children under 18	0.903 (2.29)*	0.25	2.40	75.0	536	4.5	80.9	92.6
Children 6-17 only	-0.006 (-0.01)	-0.08	2.06	72.4	1,259	10.6	72.6	72.5
Children under 6	0.459 (1.46)	0.08	1.51	44.6	211	1.8	51.7	57.7
Implied trend for age group	0.812							
Estimated trend for age group	1.041 (25.20)**	0.98	0.55	51.5	11,917	100.0		

(continued)

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TABLE 3--Concluded

Group	Trend coefficient (t-statistic)	$\bar{R}^2$	D.W.	Mean participation rate (%)	Population in 1977 (in thousands)	% of age group in 1977	Participation rate in 1977	Projected rate in 1990
AGE 45-54								
Never-married[+]	0.150 (1.38)	0.07	1.39	74.5	512	4.3	74.7	76.6
Married, spouse present								
No children under 18	0.497 (7.10)**	0.79	1.34	51.1	5,384	44.7	53.5	60.0
Children 6-17 only	0.556 (5.70)**	0.71	1.25	45.1	3,706	30.8	49.9	57.1
Children under 6	0.477 (2.85)*	0.35	1.81	27.6	124	1.0	32.6	38.0
Other ever-married								
No children under 18	0.012 (0.147)	-0.08	2.47	72.4	1,595	13.2	72.0	72.2
Children 6-17 only	-0.034 (-0.27)	-0.08	2.36	62.4	698	5.8	62.8	62.4
Children under 6	-0.002 (-0.00)	-0.08	1.25	42.7	29	0.2	48.4	48.4
Implied trend for age group	0.404							
Estimated trend for age group	0.341 (9.00)**	0.86	1.04	53.4	12,047	100.0		

[+]Estimates for never-married categories are based on data from 1967-1977, since group includes ages 14 and 15 prior to 1967. This does not affect the other categories since very few girls under age 16 were married.

[++]Average of trend estimates for ages 16-17 and 18-19, each significant at 95%.

*Trend estimates significant at the 95% level.

**Trend estimates significant at the 99% level.

[a]Participation rate assigned when projection exceeds 95%.

points per year for sixteen to seventeen year olds and 0.92 points per year for eighteen to nineteen year olds. These trends, because they are for the largest groups of teenagers, dominate the overall pattern. Another 10.5 percent of the teenagers are married; the majority of them have no children. The participation rate trends for these groups are also steep, but do not have much effect on the total. There are too few divorced, separated, or widowed teenagers to have an impact on the total.

Notice that the implied trend for teenagers--1.12 percentage points per year--is similar to the trend directly estimated for the age group. This suggests that over the estimation period no major shifts in marriage or fertility patterns for teenagers affected their participation.

Analysis of the trends for women age twenty to twenty-four provides a clear illustration of the value of disaggregating by marital and family characteristics. The trend for this age group directly estimated from its participation rates is 1.35 percentage points per year. The only large category within this age group that had an estimated trend this steep and statistically significant was the category of married women with children under age six. The largest group, those who had not married, had no trend in participation at all. Hence, the implied trend for this age group is only one-third the size of the directly estimated trend. The most important factor accounting for the sharp rise in the participation rate of this age group was the substantial decrease in the share of the group with young children (from 48 to 29 percent). Each demographic shift put many more women into circumstances in which they were more likely to be in the labor force. Nonetheless, one should not ignore the steep trends in the participation rates of the mothers of young children in this age group. This is a pattern which shows up in every age group. The presence of young children still is a barrier to labor force participation but is not nearly as important as it was thirteen years ago.

The estimates for the age groups twenty-five to thirty-four and thirty-five to forty-four have similar patterns. In both cases, most of the women are married with husbands present, and these women are increasingly likely to be in the labor force. Among these women, the trends are steepest for mothers of young children, narrowing the gap between the participation rates of these groups and those of women without children. Again, changes in the marital and family composition of each age group contributed to the participation rate trend of the overall age group. About 60 percent of the estimated trend in the participation of the age group twenty-five to thirty-four and 80 percent of the age group thirty-five to forty-four were associated with trends in

group-specific participation rates; the rest would be due to a smaller fraction of the group having husbands or young children.

The participation rate of women age forty-five to fifty-four has increased at a slower rate than that of the younger groups. Significant positive trends were estimated for the three groups of married women living with their husbands, but these trends were somewhat smaller than the comparable trends for younger women. None of the other groups had significant coefficients. The similarity in the directly estimated trend and the implied trend for this age group suggests that there were no important demographic shifts that affected the overall percentage of these women who chose to be in the labor force.

1990 Projections

Based on the participation rates of each age-marital-family status group projected for the year 1990 in the preceding section and on the assumption that the marital and family composition of each age group does not change, labor force projections have been made and are reported in this section. Also included is an analysis of the extent to which these projections are sensitive to the assumptions used to generate the participation rates and population sizes.

Table 4 reports the main projections for 1990, together with the corresponding Current Population Survey levels in 1977.

The projected labor force in 1990 is in several ways like the actual 1977 labor force. In only three instances was it necessary to impose a participation rate in 1990 different from the one calculated by adding thirteen times the trend estimate to the 1977 participation rate. One was for a very small group (twenty- to twenty-four-year-old "ever-married" mothers of children age six to seventeen); another was for a group that already had a participation rate of 89 percent in 1977. In both cases the projected rate was over 100 percent; 95 percent was assigned instead. In the third instance, married women between the ages of twenty-five and thirty-four with no children under eighteen had a projected rate of 96.6 percent. This, too, was reduced to 95 percent, although it is a close decision; the difference turns out to be only 40,000 participants.

Within every age group, the presence of children under eighteen is projected to continue to impede participation among women with husbands present and among the other "ever-married" women. In most cases, the presence of children under age six still would be a stronger barrier. The age groups twenty to twenty-four, twenty-five to thirty-four, and thirty-five to forty-four would continue to have the highest participation rates. In each case,

TABLE 4

Labor force projections based on 1964-1977 trends and 1977 population composition

	Population (thousands)			Labor force (thousands)			Participation rate (percent)		
	Actual 1977 (March)	Projected 1990	Projected change	Actual 1977 (March)	Projected 1990	Projected change	Actual 1977 (March)	Projected 1990	Projected change
AGE 16-19									
Never-married	7,248	5,790	-1,458	3,421	3,561	140	47.2	61.5	14.3
Married, spouse present	876	700	-176	436	470	34	49.8	67.1	17.3
No children under 18	514	411	-103	311	337	26	60.5	82.1	21.6
Children 6-17 only	5	4	-1	3	2	-1	60.0	60.0	0
Children under 6	357	285	-72	122	131	9	34.2	46.0	11.8
Other ever-married	178	142	-36	89	87	-2	50.0	61.3	11.3
No children under 18	100	80	-20	61	58	-3	60.7	72.6	11.9
Children 6-17 only	--	--	--	--	--	--	--	--	--
Children under 6	78	62	-16	28	29	1	35.9	47.2	11.3
Total, 16-19	8,302	6,632	-1,670	3,946	4,118	172	47.5	62.1	14.6
AGE 20-24									
Never-married	4,438	4,030	-408	3,147	2,801	-346	70.9	69.5	-1.4
Married, spouse present	4,591	4,169	-422	2,747	3,020	273	59.8	72.4	12.6
No children under 18	2,070	1,880	-190	1,677	1,658	-19	81.0	88.2	7.2
Children 6-17 only	58	53	-5	33	36	3	56.9	67.7	10.8
Children under 6	2,463	2,236	-227	1,037	1,326	289	42.1	59.3	17.2
Other ever-married	775	704	-71	484	481	-3	62.4	68.3	5.9
No children under 18	340	309	-31	255	231	-24	75.1	74.6	-0.5
Children 6-17 only	37	34	-3	24	32	8	64.9	95.0	30.1
Children under 6	398	361	-37	205	218	13	51.4	60.3	8.9
Total, 20-24	9,804	8,903	-901	6,378	6,302	-76	65.1	70.8	5.7
Total, 16-24	18,106	15,535	-2,571	10,324	10,420	96	57.0	67.1	10.1
AGE 25-34									
Never-married	1,959	2,458	499	1,640	2,043	403	83.7	83.1	-0.6
Married, spouse present	12,102	15,185	3,083	6,317	10,347	4,030	52.2	68.1	15.9
No children under 18	2,139	2,684	545	1,743	2,550	807	81.5	95.0	13.5
Children 6-17 only	3,153	3,956	803	1,904	2,995	1,091	60.4	75.7	15.3
Children under 6	6,810	8,545	1,735	2,670	4,802	2,132	39.2	56.2	17.0

(Continued)

TABLE 4--Concluded

	Population (thousands)			Labor force (thousands)			Participation rate (percent)		
	Actual 1977 (March)	Projected 1990	Projected change	Actual 1977 (March)	Projected 1990	Projected change	Actual 1977 (March)	Projected 1990	Projected change
AGE 25-34 (Continued)									
Other ever-married	2,360	2,961	601	1,785	2,399	614	75.6	81.0	5.4
No children under 18	647	812	165	575	771	196	88.9	95.0	6.1
Children 6-17 only	911	1,143	232	732	945	213	80.3	82.7	2.4
Children under 6	802	1,006	204	478	683	205	59.6	67.9	8.3
Total, 25-34	16,421	20,605	4,184	9,742	14,789	5,047	59.3	71.8	12.5
AGE 35-44									
Never-married	599	931	332	438	639	201	73.2	68.6	-4.6
Married, spouse present	9,312	14,480	5,168	5,215	9,994	4,779	56.0	69.0	13.0
No children under 18	1,420	2,208	788	916	1,561	645	64.5	70.7	6.2
Children 6-17 only	6,355	9,882	3,527	3,730	7,224	3,494	58.7	73.1	14.4
Children under 6	1,537	2,390	853	569	1,209	640	37.0	50.6	13.6
Other ever-married	2,006	3,119	1,113	1,457	2,382	925	72.6	76.4	3.8
No children under 18	536	833	297	434	771	337	80.9	92.6	11.7
Children 6-17 only	1,259	1,958	699	914	1,422	508	72.6	72.6	0
Children unuer 6	211	328	117	109	189	80	51.7	57.7	6.0
Total, 35-44	11,917	18,530	6,613	7,110	13,015	5,905	59.7	70.2	10.5
AGE 45-54									
Never-married	512	548	36	382	420	38	74.7	76.6	1.9
Married, spouse present	9,214	9,856	642	4,769	5,769	1,000	51.8	58.5	6.7
No children under 18	5,384	5,759	375	2,880	3,455	575	53.5	60.0	6.5
Children 6-17 only	3,706	3,964	258	1,849	2,263	414	49.9	57.1	7.2
Children under 6	124	133	9	40	51	11	32.6	38.0	5.4
Other ever-married	2,322	2,484	162	1,600	1,713	113	68.9	69.0	0.1
No children under 18	1,595	1,706	111	1,148	1,232	84	72.0	72.2	0.2
Children 6-17 only	698	747	49	438	466	28	62.8	62.4	-0.4
Children under 6	29	31	2	14	15	1	48.4	48.4	0
Total, 45-54	12,048	12,888	840	6,751	7,902	1,151	56.0	61.3	5.3
Total, 25-54	40,386	52,023	11,637	23,603	35,706	12,103	58.4	68.6	10.2

about 70 percent of the women would be in the labor force, a percentage still far below that of men in these groups (i.e., between 87 and 96 percent in 1977). In other words, there is nothing about these projections that stands out like a red flag, nor does there seem to be any case for tapering the estimates.[2] It is true that linear projections cannot be extended forever, but there does not seem to be anything wrong with extending them through the next decade.

The previous chapter discussed the problems with the methods used by BLS. Many of these problems are not resolved here either. Trend extrapolations should be viewed with skepticism, even if they are based on more detailed groups. It is particularly important to keep in mind the specific assumptions on which they are based: that the linear trends of each age-marital-family status group estimated for the 1964-1977 period will continue to 1990 and that the marital and family mix of each age group in 1990 will be the same as it was in 1977. Later in this chapter, alternative estimation periods and demographic patterns are used to illustrate the sensitivity of the specific projection to these assumptions.

A closer examination of the composition of the projected labor force will be provided in Part III in the context of the policy implications of continued expansion of the female labor force. Three patterns are of particular interest. First, most of the projected labor force growth will occur among women between the ages of twenty-five and fifty-four. Their population will have increased by about 12 million, and their participation rate is projected to continue to rise. Even though the participation rates of younger women are expected to increase, their labor force is not, since there will be fewer of them in 1990. The baby boom cohort will have been replaced by a much smaller group.

Second, virtually all of the net additions to the labor force are expected to be married, most with husbands present. This is largely due to the shift in the age distribution of the population noted above, but also to the expectation that married women with husbands present will continue to be attracted to the labor force and will stay married or will remarry.

Third, an extremely large increase is projected in the number of women in the labor force who are the mothers of children under age eighteen. In 1977 there were 9.6 million "ever-married" women in the labor force who had children

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2. Within one age group (thirty-five to forty-four), the projected participation rate for married women with children between the ages of six and seventeen was 2.4 percentage points above that for women with no children under age eighteen. Perhaps one or both of these projections should be adjusted.

between the ages of six and seventeen; the number projected for 1990 is 15.4 million, a 60 percent increase. Also, a 64 percent increase in the number of mothers of children under age six is projected, from 5.3 million to 8.7 million mothers. By way of comparison, the entire female labor force under age fifty-five is projected to increase by 36 percent in this period.

How likely is it that there really will be a substantial increase in working mothers with young children? Although the specific number is sensitive to the assumptions built into the projections, there seems little doubt that there will be a large increase and, with it, a large increase in the number of young children with working mothers. Three factors contribute to the expected increase. First, the number of women in their prime childbearing years will continue to increase until the middle of the next decade. In 1976, there were 30.1 million women in the age group eighteen to thirty-four; in 1985, there will be 33.9 million; and in 1990, the number will fall slightly, to 33.1 million women. Second, most demographers anticipate a leveling-off or an increase in fertility rates; there is no basis for expecting a further decline. The fertility rate projection used here may be conservative. Third, the participation rates of women with young children have risen more rapidly than those of any other group. Part of this has been due to the increasing acceptability of combining motherhood with work outside the home. The women who will be bearing children in the 1980s were mostly in their teens and early twenties in the 1970s and are likely to hold newer views; also, they will have had more role models who combined child rearing and labor market activities. Thus, the participation rate increases that occurred in recent years are likely to continue. But even if the age-specific participation rates grow at only half the increase projected here, there would still be 7.5 million mothers of children under age six in the labor force--a 42 percent increase over the 1977 level.

The question still remains whether these projections should be believed. The main problem with trend extrapolations is that they ultimately hinge on an untested assumption--that things will continue along the paths followed during the estimation period. This particular set of projections has two critical elements. The first one is that the estimation period, 1964 through 1977, is the appropriate one. The second is that the marital and family characteristics of the female population within each age group will remain as they were in 1977. We do not really know whether either element will turn out to be correct, but we can, at least, examine the degree to which the projections would change by deciding otherwise.

As was noted in Chapter 1 in our critique of trend extrapolations that are based only on the participation rates of age groups, they can be quite sensitive to the choice of estimation period. There, it was shown that the projected force age twenty-five to fifty-four in 1990 varied by 1.4 million, depending on whether one used 1960 or 1967 as the beginning of the estimation period.

The range is somewhat narrowed by using trends for more detailed demographic groups, because one source of instability is removed. As shown in Table 5, the projections for this group (twenty-five to fifty-four) vary by about 400,000 with the same set of estimation periods. Most of the differences in the projections within this group are in the projections for women between the ages of twenty-four and thirty-four. But even here, the 400,000 range is far smaller than the 1.1 million range based on the age-only projections for the same periods (Table 2).

Two notes of caution are required. First, one reason that the range here is so narrow is that the projections for women age twenty-five to thirty-four with no children were all put at 95 percent in 1990, because all three trend estimates implied participation rates above 95 percent. A more important caveat is that just because this particular set of projections has a narrower range than the comparable ones using age-only participation rates, this does not always have to be the case. Nor does it follow that a narrower range is a more accurate one. The main lesson that should be learned from this is that disaggregation can provide more information about the sources of the fluctuations over time in each age group's participation rates which cause extrapolations to vary.

An important assumption used in our trend extrapolations is that the marital and family composition within each age group will not change between 1977 and 1990. But suppose it does. Since married women within most age groups are less likely to participate than women who never married or who are divorced, separated, or widowed, the participation rate of the age group should rise if the proportion married within each group declines. Similarly, if the proportion with young children declines, the participation rate should be higher. However, since the gap between the participation rates of the women in the various marital and family groups is projected to narrow over the next decade, the sensitivity of the projections to the accuracy of the demographic assumptions should decline. Being married and being a mother will still affect many women's participation decisions, but not by as much as it does today, which in turn is much less than a decade ago.

TABLE 5

Labor force projections based on alternative estimation periods

	Based on 1967-1977 estimates			Based on 1960-1977 estimates		
	Trend estimate	Projected participation rate 1990 (percent)	Projected labor force 1990 (thousands)	Trend estimate	Projected participation rate 1990 (percent)	Projected labor force 1990 (thousands)
AGE 25-34						
Never-married	0.326	87.9	2,162	0.085	84.8	2,084
Married, spouse present						
No children under 18	1.351	95.0	2,550	1.040	95.0	2,550
Children 6-17 only	1.111	74.8	2,959	1.053	74.1	2,931
Children under 6	1.407	57.5	4,913	1.194	54.5	4,657
Other ever-married						
No children under 18	1.860	95.0	771	1.049	95.0	771
Children 6-17 only	0.375	85.2	974	0.264	83.7	957
Children under 6	0.971	72.2	726	0.889	71.2	716
Total, 25-34			15,055			14,666
AGE 35-44						
Never-married	0.018	73.4	683	-0.404	67.9	632
Married, spouse present						
No children under 18	0.563	71.8	1,585	0.446	70.3	1,552
Children 6-17 only	1.095	72.9	7,204	0.999	71.7	7,085
Children under 6	1.031	50.4	1,205	0.952	49.4	1,181
Other ever-married						
No children under 18	1.425	95.0	791	0.534	87.8	731
Children 6-17 only	-0.884	61.1	1,196	-0.001	72.6	1,422
Children under 6	0.139	53.5	175	0.043	52.3	172
Total, 35-44			12,839			12,775
AGE 45-54						
Never-married	0.374	79.6	436	-0.198	72.1	395
Married, spouse present						
No children under 18	0.415	58.9	3,392	(1964-77 est.)	--	3,455
Children 6-17 only	0.451	55.8	2,212	0.617	57.9	2,295
Children under 6	0.558	39.9	53	0.423	38.1	51
Other ever-married						
No children under 18	0.014	72.2	1,232	(1964-77 est.)	--	1,232
Children 6-17 only	-0.143	60.9	455	-0.043	62.2	465
Children under 6	0.307	52.4	16	(not estimated)	--	15
Total, 45-54			7,796			7,908
Total, 25-54		68.6	35,690		68.0	35,349

To illustrate the importance of the marital and family mix of the population that is assumed for the labor force projections, new projections were made for 1990 which differ from the main ones reported in Table 4 only in this dimension: Instead of assuming that the marital and family composition within each age group will be that which existed in 1977, the composition from 1964 near the peak of the baby boom was used. The most important difference between those years was in the percentage of women who had young children. For example, in 1964, 65 percent of the women within the age group twenty-five to thirty-four were "ever-married" and had children under age six; in 1977, only 46 percent of the women in this age group were in this situation.

Table 6 reports the labor force projection for 1990 that results from using the alternative distributions. The projected labor force of women, age twenty-five to fifty-four, that results is 1.7 million less than our main projection. Most of the difference is within the age group twenty-five to thirty-four, the group most affected by the sharp decline in fertility rates that occurred in the late 1960s and 1970s. Although it appears highly unlikely that family sizes will increase over the next decade to anything like those of the early 1960s, this comparison demonstrates how dependent labor force projections are on the accuracy of the demographic projections. With the procedure that has been followed in this chapter, it is easy to change the demographic assumptions and generate new labor force projections. This could be done as new information becomes available about future demographic distributions.

TABLE 6

Labor force projections for 1990 based on alternative demographic scenarios

	Projected participation rate[a]	Hypothetical population[b] (1964 mix)	Projected labor force
AGE 25-34			
Never-married	83.1	1,437	1,194
Married, spouse present			
No children under 18	95.0	1,552	1,474
Children 6-17 only	75.7	3,386	2,563
Children under 6	56.2	12,341	6,936
Other ever-married			
No children under 18	95.0	466	443
Children 6-17 only	82.7	459	380
Children under 6	67.9	963	654
Total, 25-34	66.2	20,605	13,644
AGE 35-44			
Never-married	68.6	843	578
Married, spouse present			
No children under 18	70.7	2,388	1,688
Children 6-17 only	73.1	8,211	6,002
Children under 6	50.6	4,727	2,392
Other ever-married			
No children under 18	92.6	837	775
Children 6-17 only	72.6	1,124	816
Children under 6	57.7	400	231
Total, 35-44	67.4	18,530	12,482
AGE 45-54			
Never-married	76.9	840	646
Married, spouse present			
No children under 18	60.0	5,537	3,322
Children 6-17 only	57.1	3,997	2,282
Children under 6	38.0	341	130
Other ever-married			
No children under 18	72.2	1,553	1,121
Children 6-17 only	62.4	587	366
Children under 6	48.4	40	19
Total, 45-54	61.2	12,885	7,886
Total, 25-54	65.4	52,020	34,012

a. Based on 1964-1977 trends, as used in main projections reported in Table 4.

b. Based on marital and family composition of the population within each age group that existed in 1964; computed by multiplying 1964 proportions by 1990 population levels.

PART II

THE DETERMINANTS OF FUTURE GROWTH

The number of women in the labor force in the year 1990 will be determined by the decisions made by each of the nearly 100 million women who will be age sixteen or older in that year. The projections reported in Part I were based on the assumption that past labor force growth rates provide useful information about the collective outcome of this decision-making process. They began with the observation that the labor force participation rate of a category of women had increased in the past and concluded that, if history repeats itself, the participation rate will continue to increase. This is valid logic, but does not necessarily result in an accurate projection. Its accuracy will depend on what these women, including some currently not old enough to be in the labor market, decide to do. These decisions, in turn, will be influenced by their needs and their opportunities.

Part II of this report presents what we have learned about the factors that will influence those decisions and that will ultimately determine how many women will be in the labor force in 1990. Based on a preliminary assessment about the factors likely to be most important, three sets of studies were launched. One focused on the demographic determinants, as discussed in Chapter 2 and examined further in Appendix A. Another, presented in Chapter 3, focused on economic determinants. The third considers the impact of changing attitudes toward the role of women on their decision to work outside the home; a report on the state of knowledge on this topic is provided in Chapter 4. Lessons from these attempts to use behavioral models to project labor force growth are summarized in Chapter 5.

CHAPTER 3. THE INCREASED REWARDS FOR BEING IN THE LABOR FORCE

The rapid growth in the labor force participation rate of women in recent decades indicates that for a growing percentage of the female population, the perceived benefits of spending at least some of their time in paid labor market activities have increased. A projection that the rate will continue to rise implies that the balance will continue to tilt toward participation. What was changing? What basis is there for assuming that further changes will occur?

Two changes have already been discussed. First, there has been a decline in the proportion of women in various age groups who are married and living with their husbands. Second, the proportion of women with young children has also declined. The first change resulted in more women having to rely on their own earnings to support themselves and, in some cases, their children. The second reduced the nonmarket demands on the time of many women. The links between these changes and the decision to participate in the labor force may pull in both directions. One reason that the fertility rate declined may be because more women decided that working outside the home was more attractive. In any event, the net result was more women in marital and family situations in which they would more likely participate in the labor force.

These factors are not likely to be a major source of change in the labor force over the next decade. As discussed in Appendix A, only minor changes in marital and family characteristics of the female population are anticipated between now and 1990. Some students of population cycles anticipate another baby boom, which could deter further increases in participation of young women (Easterlin, 1978). However, the reasoning on which this is based (that cohorts born in a period of low birthrates will have high birthrates) implies that such a boom would not begin before 1985 or 1990 and therefore would have little impact on labor force growth before 1990.

Any further large increases in the female labor force will most likely come from higher participation rates among women in intact marriages. This is not only the largest segment of the adult female population, but it is also the group with the highest fraction of members still outside the labor force. The trend extrapolations reported in Part I called for 10 million more married women under age fifty-five to be added to the labor force between 1977 and 1990. Eight million of them would have children under age eighteen. The

participation rates of married women within each child status category have been sharply increasing, and these extrapolations are based on the assumption that the increases will continue unabated. Why were they increasing? Will the reasons continue to be operative?

Explanations in the Literature

A number of economists and sociologists have tried to answer the first question. Their answers provide a starting point for trying to answer the second as well. The theory of decision making developed in microeconomics provides a useful framework. An individual's decision about whether to participate in the labor force is based on the perceived rewards of paid employment relative to the rewards of spending this time outside the labor force. Time spent outside the labor force could include a multitude of activities such as going to school full time, homemaking, doing volunteer work, or simply engaging in leisure activities.

For healthy men who have completed their education and are younger than normal retirement age, the decision to seek work is hardly a conscious one. Ninety-five percent of all men between the ages of twenty-five and fifty-four report that they are either working or looking for work. Economic necessity and social conformity together serve to make the cost of neither working nor looking for work unacceptably high for men in this age group.

Other demographic groups include large numbers of individuals who do have a choice. As we have seen, an increasing proportion of married women have chosen to participate. This suggests that the perceived benefits of being in the labor force have been increasing, that the benefits of not participating have been decreasing, or both. What has changed?

Most economists who have investigated this subject rely heavily on economic explanations. As the economy has expanded throughout most of this century, real wages (adjusted for inflation) available to women have increased manyfold. There has been no corresponding increase in the rewards for working within the home. Therefore, more women have shifted part of their work activity into the marketplace. The "opportunity cost" of staying at home all day has become too great for a growing proportion of women.

The economic model on which this conclusion is based takes into account two opposing forces set in motion by rising wages. The first is the positive relationship between participation in the labor force and the wage rate discussed above: as wages rise, paid labor is substituted for unpaid activities outside the labor market. The opposing force is an income effect: rising

income within a family associated with higher wages is translated into less economic pressure to work and greater financial means to enjoy leisure pursuits, go to school, and so forth.

For married women with husbands present, there is convincing evidence that the substitution effect has outweighed the income effect. Even though husbands' earnings have increased throughout most of the century, thus permitting improvement in living standards without wives entering the labor force, many wives still have chosen to do so. The economic explanation for this is that these women were facing a three-way choice, rather than the simple labor vs. leisure choice originally presumed in the theory. For them, the third option is unpaid work within the home. An increase in family income permits a reduction in unpaid work through the purchase of labor-saving devices, restaurant meals, domestic service, and the like. Since husbands usually spend very little time doing housework, the income effect for them produces only a reduction in paid labor. Thus, increases in real wages over time may cause less participation in the labor force for married men (or, more likely, fewer hours worked) and more participation for married women. This is precisely what has occurred in this century (Cain, 1966; Mincer, 1962).

Additional economic explanations for the long-term increase include the tremendous growth in the kinds of jobs that are thought to be most appealing to married women or for which employers are most willing to hire women. These include the growth in the service sector, office employment, and jobs that permit part-time schedules. Also, the importance of physical strength in many industrial sector jobs has diminished. In addition, women are acquiring more education, enabling them to qualify for jobs that are both better paying and more interesting (Oppenheimer, 1970).

These explanations are closely related to the wage explanation in that they help account for the continual rise in women's wages, even as so many women enter the market. Had demand not increased, it would have been likely that their wages relative to men's would have fallen. In fact, the ratio of median female to male wage rates has been remarkably stable, remaining near six-tenths of the male wage throughout the century. Nonetheless, some independent effects of the shifts in the mix of job opportunities and in educational advancement should be expected, since both affect the nonmonetary benefits of paid employment as well.

Other economic factors that may affect the decision of a married woman to participate in the labor force include the likelihood of finding a job, her husband's employment status, and inflation. Changes in these variables cause

temporary changes either in expected rewards or in income levels. Each may account for the pace of labor force growth in particular periods of unemployment fluctuations or inflation, but not for the long-term growth. For example, in the depressed economy of 1973 IV to 1975 IV the female labor force increased by 3.2 million; during the next two years, as the economy recovered, 5.5 million women were added to the labor force.

Finally, changes in sex-role attitudes have been credited with contributing to the rapid rise in the female participation rate in recent years. In 1964, 54 percent of women surveyed agreed that a mother who worked could still establish a close relationship with her children. Within only six years, the percentage of women with this view increased to 73 percent (Mason et al., 1976). These proportions are a far cry from the attitudes prevailing in the 1930s when only 18 percent of the women participating in a national opinion survey gave an unconditional yes to the question, "Do you believe that married women should have a full-time job outside the home?" and 41 percent said no (Oppenheimer, 1970). Sociologists have assembled convincing evidence that an increasing proportion of women believe that work outside the home is compatible with their other roles and that this increasing conviction is related to the growth in their labor force. Once again, causation is difficult to assign. For example, attitudes may have changed largely in response to the economic factors cited. Nonetheless, it seems likely that whatever the original reason, the result will be either to increase the perceived benefit of being in the labor force or to decrease the perceived benefit of staying at home.

In summary, in various periods all three sets of factors discussed here--improvement in job market opportunities, demographic change, and liberalization in attitudes--have contributed to the expansion of the female labor force. Over the next decade the perceived rewards for being in the labor force are likely to continue to increase for married women, both because the economic benefits should rise and because the perceived conflict between being a paid worker and a wife or mother should continue to diminish. The next section presents a framework for using information about the behavioral determinants of labor force participation to make projections of future growth. The remainder of this chapter and Chapter 4 report our attempts to use this framework to make labor force projections for women in 1990 which are conditional on the future course of economic and attitudinal variables. The results are summarized and interpreted in Chapter 5.

A Framework for Projecting Labor Force Growth

The trend extrapolations presented in Part I were based on the arbitrary assumption that whatever caused the participation rate of each group to increase during the estimation period would continue to operate and have the same effect during the projection period. The methods used in Chapter 2 can be summarized with two equations:

$$(1) \quad L = \sum_i L_i = \sum_i (L/P)_i P_i \ ,$$

where L is the projected size of the total female labor force, L_i the projected size of the i^{th} age-marital-family status group's labor force, $(L/P)_i$ its participation rate, and P_i its noninstitutional population. Each group's 1990 participation rate is projected from a trend estimate which is used in the second equation:

$$(2) \quad (L/P)_i = 1977(L/P)_i + b_i(13) \quad \text{or} \quad \Delta(L/P)_i = b_i(13) \ ,$$

where the 1977 participation rate is from the Current Population Survey and b_i is the estimate of the trend for the i^{th} group.

With this approach, the only information that is needed about women in 1990 is their distribution by age, marital, and family status. These were based on Census Bureau projections and assumptions about the demographic mix within each age group.

The objective of the studies reported in the remainder of Part II is to replace equation (2) with participation rate projections that are based on the actual determinants of each group's participation rate growth. From the survey of explanations in the preceding section, the expected change in a group's participation rate could be depicted by:[3]

$$(3) \quad \Delta(L/P)_i = b_{1i}\Delta W_i + b_{2i}\Delta H_i + b_{3i}\Delta N_i$$

$$+ b_{4i}\Delta E_i + b_{5i}\Delta A_i + b_{7i}\Delta U + b_{8i}\Delta T.$$

The first three variables on the righthand side are measures of the expected growth in potential sources of income to the women in that group: own real wages (ΔW_i), wages of husbands or other members of the income-sharing unit (ΔH_i), and nonearned income (ΔN_i). These are the variables that standard neo-classical economic theory suggests. The coefficient on ΔW_i can be positive

3. The impact of changes in the marital and family composition of the female population would continue to be reflected in the population weights used to sum the individual groups.

or negative, depending on whether the substitution or income effect dominates; most studies of women's participation behavior have found that the positive substitution effect dominates. The coefficients on other sources of income, b_{2i} and b_{3i}, should be negative.

The next two variables measure changes in the group's average educational attainment and work-related attitudes, respectively; the coefficients on each should be positive. The next variable, U, is a cyclical variable that may reflect either variations in job market conditions for the group or for the entire labor force. If measured by unemployment, the sign on its coefficient should be negative.

The final variable, a time trend, is included to depict the net effect of omitted variables which, themselves, are expected to systematically increase or decrease over time. The major purpose of the trend term in this model is to provide an alternative means of projecting the participation rates of groups for which there is insufficient behavioral information on which to base a projection. In this event, the trend extrapolation method presented in Part I is the recourse.

With this model, two additional kinds of information are needed to project participation rates of each group: estimates of the parameters of each group's participation rate equation and projections of the values of each righthand side variables. Equation (3) could not be directly estimated from historic time series data, even if the data existed. Several of the variables are collinear. Also, causality flows in both directions, suggesting the need for simultaneous equation methods. Estimation from cross-sectional data could not provide accurate estimates of the impacts of cyclical variations.

The solution used here is to piece together the parameters of equation (2) from several sets of estimates. This approach is not very elegant, but should provide, at a minimum, a good indication of which factors are likely to make a difference in projecting labor force growth and whether the labor force projections presented in Part I are consistent with reasonable assumptions about the future course of these factors.

No new equations were estimated for this study. Instead, we sought to determine what could be learned from the already sizable literature on the labor force behavior of women, especially of married women. Two distinct sets of studies were reviewed. The first, discussed in the remainder of this chapter, focuses on economic determinants. The second, reviewed in Chapter 4, focuses on attitudinal determinants. In the estimates presented here, little attention is paid to nonearned income, educational attainment, and unemployment variables.

A discussion of these is deferred until Chapter 5, where the projection implications of this review are summarized.

The Impact of Future Wage Growth[4]

The conceptual and empirical bases for anticipating that female participation rate growth will be directly related to real-wage growth are well established. Mincer and Cain each demonstrate that the majority of the participation rate growth of married women in the first half of this century was associated with wage growth. However, less confidence can be placed on the precise parameters of this relationship. Single equation estimates are no longer in fashion, but more sophisticated techniques are still in the experimental stage. This section reviews the state of the art as it relates to the projection issue.

Three types of data are available for estimating the relation: time series, micro, and grouped cross-sectional. For inferring the labor force response to permanent or long-run differences in wages, cross-sectional data grouped by geographic unit are generally preferred. They avoid the biases associated with contemporaneous changes in such matters as taste and technology inherent in the time-series observations, as well as the problem of distinguishing between a short-term timing response vs. a response to long-run changes in the reward structure. Grouping is preferred over direct use of individual observations because it avoids the need to infer potential wages for nonparticipants and probably reduces biases resulting from a positive relation between one's potential wages and tastes for work.

In Mincer's original analysis, 1950 Census tabulations for the fifty-seven largest northern standard metropolitan areas were used to estimate an equation in which the participation rate of married females with spouse present was related to the median income of females who worked year round and the median income of married males with spouse present. Mincer argued that the differences in average wages between areas primarily reflected differences in long-run potential earning power. Hence, the coefficients could be interpreted as the estimated impacts of differences in "permanent" earnings in the Friedman sense. This equation, together with data on changes in real earnings, was then used to backcast decennial changes in the participation rate of married women from 1890 to 1960. He found that about three-fourths of the twenty-five point increase

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4. This section is excerpted, with minor changes, from the author's "Projecting the Size of the Female Labor Force: What Makes a Difference?" The paper was presented on September 29, 1977, at the Conference on Women in the Labor Market, sponsored by the Department of Labor, and will appear in a book based on the conference (see Smith, Forthcoming).

in their participation rate could be accounted for by this relationship, but with considerable variation from one decade to the next (Mincer, 1962).

Cain further developed this framework and estimated participation equations with additional data sets. He, too, found that the largest part of the secular growth in the participation rate of married women could be accounted for by growth in real wages. However, his estimates were sensitive to the choice of data sets. He concluded that Mincer's findings--that the absolute value of the elasticity with respect to wives' earnings exceeded that with respect to other income--"was weakened by my research but not overturned" (Cain, 1966, p. 117). He also found that single equation estimates are not stable over time. A recent re-estimation of Mincer's equations confirmed this (Fields, 1976).

The experiences of Mincer and Cain in using cross-sectional wage coefficients to account for past increases in female participation are precedents for the projection method examined here. As far as I know, no one has used this approach to project the course of future participation, but it is a straightforward extension of their work. The empirical problems, however, are formidable. First, it requires information about the future path of wages for men and women. These may be as hard to project as participation itself. Second, it requires wage coefficient estimates. These, too, are subject to considerable error.

Future Wage Growth

Three alternative wage scenarios are used, reflecting the uncertainty about the long-term potential productivity growth of the economy, its translation into real-wage growth, and whether the gap between women's and men's wages will begin to narrow by 1990. The main projection is based on the assumption that between 1975 and 1990 hourly real wages of women and men will each grow at a compound rate of 2 percent per year, so that by 1990, wages will be about 35 percent above their 1975 levels. Two alternative scenarios illustrate the sensitivity of the labor force projection to aggregate wage growth and to changes in the female/male wage ratio. For the former, a 3 percent annual growth rate in female and male wages is assumed. For the latter, the 2 percent aggregate growth is maintained, but with the aggregate female/male wage ratio increasing from about .59 to .65. From these projections, the readers could readily examine the implications of their own guesses or forecasts. The 1990 wage patterns under each of the three assumptions are shown in Table 7.

TABLE 7

Three alternative wage patterns, 1975-1990

Race and age group	1975 median income of year-round full-time workers[a]		1990 median income under Scenario A[b]		1990 median income under scenario B[c]		1990 median income under Scenario C[d]	
	Female (1)	Male (2)	Female (3)	Male (4)	Female (5)	Male (6)	Female (7)	Male (8)
White								
30-34	$8,683	$14,185	$11,722	$19,150	$13,545	$22,129	$12,543	$18,576
35-44	8,175	15,161	11,036	20,467	12,753	23,651	11,809	19,853
45-54	8,074	15,182	10,900	20,496	12,595	23,684	11,663	19,881
Average, 30-54	8,236	14,974	11,119	20,215	12,848	23,359	11,897	19,609
Black								
30-34	8,288	10,582	11,189	14,286	12,929	16,508	11,972	13,857
35-44	7,567	10,905	10,215	14,722	11,805	17,012	10,930	14,280
45-54	7,030	10,289	9,490	13,890	10,967	16,051	10,154	13,473
Average, 30-54	7,496	10,594	10,120	14,302	11,694	16,527	10,828	13,873

a. Current Population Reports, Series P-60, No. 105, Table 46; 30-54 average calculated from group medians.

b. 1975 median income multiplied by $(1.02)^{15} = 1.35$.

c. 1975 median income multiplied by $(1.03)^{15} = 1.56$.

d. Scenario A female income (column (3)) increased by 7 percent and male income (column (4)) reduced by 3 percent. Assuming the female share of aggregate-employment in 1990 would be about 42 percent, these changes would keep aggregate median income at the same level as in Scenario A.

The 2 percent annual growth rate in real wages is based on the assumption that the slowdown in private productivity growth between 1966 and 1973 will continue through 1990. During that period, output per hour grew by only 2.1 percent per year, substantially below the 3.3 percent annual growth between 1948 and 1966. The Ford Administration Council of Economic Advisers, in its revision of potential GNP estimates, assumed that this slowdown would continue at least through 1981 (U.S. President, Economic Report of the President, 1977, pp. 45-56; Clark, 1977b). George Perry (1977) has argued that this assumption is unwarranted. In either case, the main projection is probably conservative in that the recovery from the recession itself should provide growth rates above normal for the first few years. Scenario B, assuming a 3 percent annual growth rate, should provide an upper bound.

The assumption that the female/male wage ratio will not change during this period may be overly pessimistic, but recent history supports it. Between 1955 and 1975, the ratio fluctuated between .58 and .64, with a slight negative trend (U.S. Dept. of Labor, Women's Bureau, 1976; U.S. Bureau of the Census, various issues). Also, the age pattern of female/male wage ratios has not changed. Since men have steeper age-earnings profiles, the female/male wage ratio declines with age. For example, in 1975, the ratio for whites ages thirty to thirty-four was .61; .54 for ages thirty-five to forty-four; and .53 for forty-five to fifty-four.

Under the assumptions used for Scenario C, some progress toward wage equality would be achieved, increasing the female/male wage ratio within each age-race group proportionately. This is most likely to occur if the pattern of occupational segregation weakens and if women stay in the labor force longer. The main purpose of providing this scenario is to indicate one effect of progress toward equality that is generally overlooked.

Participation-Wage Relationship

Two studies have been published that use multi-equation techniques to estimate the structural relationships influencing wives' participation. The first, by Ashenfelter and Heckman (1974), uses area data from the 1960 Census to estimate the labor behavior of married men and women. The second, by Cain and Dooley (1976), uses 1970 Census data to estimate a model of married women's participation, fertility, and wages. These two studies provide the basis for my estimates of the effects of real-wage growth on women's participation. The Cain and Dooley study will be emphasized here because it uses more recent

data, provides separate estimates for several age groups, and illustrates the sensitivity to alternate model specifications.

Cain and Dooley's labor participation equation is part of a three-equation model in which married women's participation, fertility, and earnings are jointly determined. The model is estimated with three-stage least squares, using 1970 Census data for 124 Standard Metropolitan Statistical Areas as the units of observation. Estimates were made for white and black wives ages thirty to fifty-four and for each of five age groups within each category.

One set of projections is based on their structural equation for the labor participation of white wives with husband present, ages thirty to fifty-four. Their equation is:

$$(4) \quad (L/P) = \text{constant} + 1.6W - 0.52H - 0.45N - 2.2U + 1.6D + .01F - 4.6E ,$$

where W is the median earnings (in hundreds of dollars) of white females, ages fourteen and over, who worked a full year in 1969; H is the mean income of males with income; N is nonlabor income; U is the male unemployment rate; D is the wives' disability rate; F is the number of children ever born per 1,000 women now married; and E is the median educational attainment of females. The two wage coefficients had t-statistics greater than 1.64, and the unemployment and disability coefficients each had t-statistics greater than 1.96; the rest were insignificant.

The coefficients on the two wage terms are similar to those of other studies using less sophisticated techniques. For the moment, the other parameters will be ignored. The positive sign on disabilities appears to be because the term is also picking up an age effect; in the age-specific equations the coefficient is negative. Also, in the latter equations the education term is positive for all but the youngest and oldest groups.

The predicted participation rate impact of changes in earnings, ignoring all other variables, would be given by:

$$(5) \quad \Delta(L/P) = 1.6\ (\Delta W) - 0.52\ (\Delta H) ,$$

where the dependent variable is measured in percentage points and the independent variables in hundreds of 1969 dollars. The labor participation elasticities with respect to own wages and husband's income are typical of the literature. Evaluated at the means, they are 1.83 and -1.28, respectively. Thus, a 1 percent higher wage for both women and men implies a 0.55 percent higher participation rate among white, prime-aged married women.

However, the wage and husband's income coefficients from this model estimated for separate age groups yield unreasonably high elasticities. The own-wage elasticities for white wives range from 1.80 for the age group forty to forty-four to 8.32 for the age group thirty to thirty-four. The husband's income elasticities for these groups are -1.54 and -2.95, respectively. The increase in participation of white wives aged thirty to fifty-four derived from the age-specific coefficient estimates is far greater than the increase derived from the aggregate coefficient estimate.

A second set of estimates by Cain and Dooley, using a variation of their model, provides more consistent estimates.[5] Own-wage elasticities for whites range from 1.20 for ages thirty-five to thirty-nine to 2.79 for ages fifty to fifty-four. Husband's income elasticities range from -0.80 to -1.96 for the same groups. Their aggregate (white) wage and husband's income elasticities were 1.26 and -0.96, substantially lower than either their previous estimates or than most of their age-specific estimates with the same version of the model.

Cain and Dooley's estimates for black wives imply a negative relation between their participation rate and real-wage growth. However, most of the own-wage coefficients are insignificant in both versions of their model.

In the Ashenfelter and Heckman model, the participation rates of husbands and wives are jointly determined. The estimates for wives ages twenty-five to fifty-four provide no disaggregation by age or race. The estimates of own-wage and husband's wage elasticities are 0.873 and -0.285, respectively. These imply that a 1 percent across-the-board increase would increase the participation of prime-age wives by 0.59 percent.

What Difference Will Wages Make?

Based on own-wage and husband's income elasticities derived from the Cain and Dooley and the Ashenfelter and Heckman studies, the labor force implications of alternative wage growth scenarios can now be examined. The projections provided here can be interpreted as conditional forecasts of the growth in the labor force of prime-age married women if no other factors that influence their participation change. Assuming that other factors do not interact with the influence of own-wages and husband's income, the projections presented here provide estimates of the difference that the growth of earnings and the progress toward wage equality could make on married women's participation by 1990.

5. I am indebted to Glen Cain for providing these unpublished estimates. In their "hybrid" model, participation and fertility are each functions of wages and all exogenous variables, but not of each other.

Table 8 displays the estimated impacts of the three alternative wage scenarios, using the coefficients derived from the studies by Cain and Dooley and by Ashenfelter and Heckman. The first three columns provide the 1975 participation rate of each group of prime-age married women with spouse present and the own-wage and husband's income coefficients. The remaining columns provide estimates of the fifteen-year change that would result from each wage growth scenario in the participation rate of each group. They are based on my translation of Cain and Dooley's hybrid model estimates by race and by age-race and Ashenfelter and Heckman's estimates for prime-age wives. The latter two are slightly more reasonable, but all are provided to illustrate the sensitivity of these projections to differences in estimation procedures.

Several results are of interest for the insights they provide on how much wage growth matters. First, under any reasonable assumption about real-wage growth over the fifteen-year projection period, the participation rate of white wives is likely to continue to increase substantially. A 2 percent annual wage increase over the fifteen-year period (Scenario A) is predicted to induce a five- to ten-point increase in their participation rate.

Second, the comparison between the 2 percent and 3 percent annual growth scenarios illustrates the importance to working women of strong economic growth. The sensitivity of married women's participation decision to potential wages at a point in time is well recognized. The projections presented here suggest that the future path of their participation rate is likely to be linked to real-wage growth. Since wage growth, in turn, is closely linked to productivity growth, this indicates that two of the components in potential GNP estimates--labor force and productivity--are likely to be related. The more rapidly hourly output grows, the more incentive there is for married women to participate in the paid labor market. The estimates presented here suggest that a 1 percent annual difference in real-wage growth over a fifteen-year period could increase this group's participation by three to seven percentage points.

Third, the comparison between the two scenarios that differ only in their assumptions about the course of the female/male wage ratio is particularly interesting. It provides evidence that, in addition to the obvious benefits of reducing the wage gap, such a move could have a considerable impact on the decision to enter or remain in the labor force. The size of this impact differs greatly among the estimates presented here. An increase in the wage ratio from 0.59 to 0.65 is projected to increase white wives' participation by between five and fourteen percentage points. But even for the lowest estimate, the

TABLE 8

Impact of three alternative wage patterns, 1975-1990

	1975 participation rate (1)	Adjusted own-wage coeff. (2)	Adjusted husband's coeff. (3)	Scenario A: Own-wage effect (4)	Scenario A: Husband's effect (5)	Scenario A: Predicted change (6)	Scenario B: Own-wage effect (7)	Scenario B: Husband's effect (8)	Scenario B: Predicted change (9)	Scenario C: Own-wage effect (10)	Scenario C: Husband's effect (11)	Scenario C: Predicted change (12)
Cain-Dooley (race-age specific)[a]												
White wives												
30-34	45.9	0.78	-0.34	23.7	-16.9	6.8	37.9	-27.0	10.9	30.1	-14.9	15.2
35-44	51.2	1.01	-0.41	28.9	-21.7	7.2	46.2	-34.8	11.4	36.7	-19.2	17.5
45-54	49.8	1.63	-0.62	46.1	-33.0	13.1	73.7	-52.7	21.0	58.5	-29.1	29.4
30-54 (average)	49.5	1.21	-0.48	34.9	-25.2	9.7	55.8	-40.2	15.6	44.3	-22.2	22.1
Black wives												
30-34	63.0	-0.46	0.10	-13.3	3.7	-9.6	-21.4	+ 5.9	-15.5	-17.0	3.3	-13.7
35-44	61.7	0.21	-0.28	5.6	-10.7	-5.1	8.9	-17.1	- 8.2	7.1	- 9.5	- 2.4
45-54	55.6	0.51	-0.41	12.6	-14.8	-2.2	20.1	-23.6	- 3.5	15.9	-13.0	2.9
30-54 (average)	59.5	0.20	-0.26	5.2	- 9.6	-4.4	8.4	-15.4	- 7.0	6.7	- 8.5	- 1.8
Cain-Dooley (race-specific)[b]												
White wives												
30-54	49.5	0.76	-0.32	21.9	-16.8	5.1	35.0	-26.8	8.2	27.8	-14.8	13.0
Black wives												
30-54	59.5	-0.04	-0.21	- 1.0	- 7.8	-8.8	- 1.7	-12.4	-14.1	- 1.3	- 6.9	- 8.2
Ashenfelter-Heckman[c]												
Wives												
25-54	50.2	0.52	-0.09	15.0	- 4.7	10.3	24.0	- 7.6	16.4	19.1	- 4.2	14.9

a. Coefficients are based on their hybrid model elasticities, applied to the 1975 values of the female and male income variables presented in Table 7. The adjusted coefficient equals the original elasticity times the 1975 group participation rate, divided by the 1975 average value of the independent variable. This maintains the original elasticity at the means. The average coefficients are calculated from the adjusted coefficients for the individual race-age groups.

b. Coefficients are based on their hybrid model elasticities for white and black wives, derived in the same manner as above.

c. Derived from their elasticities, as above.

effect is almost as large as the corresponding estimate of the impact of achieving a 1 percent higher annual wage growth path.

Increasing the female/male wage ratio is expected to be important because in this case the positive own-wage effect is not offset by a negative husband's income effect. Indeed, the lower wage growth of men acts to increase the participation impact through its negative income effect.

Precise estimates of the potential impact of narrowing the wage gap are particularly error-prone in the absence of information about the mechanism that brought about the reduction and about the other effects of that reduction. I suspect that increases in the female/male wage ratio generated by a reduction in occupational segregation would ultimately result in women's labor supply behavior becoming more similar to that of men.[6] These are structural changes that would violate the assumptions underlying the projection methods used here. Nonetheless, it is clear that movement toward equality of treatment in the market could have a powerful effect on participation patterns.

The projections for specific white age groups suggest that the sensitivity to aggregate wage growth is greater for the age group forty-five to fifty-four than for wives between thirty and forty-four. Also, their reaction to an increase in the female/male wage ratio would be much stronger. Both results seem reasonable in that members of the older group are less likely to have children at home and may have greater discretion in their decisions about how to organize their lives. However, these estimates are based on a single study, one in which the initial specification yielded unreasonable estimates at the detailed age level. Therefore, not much significance should be attached to these projections.

The projections for black wives are set forth with the least confidence. The own-wage and husband's income coefficients that had t-statistics equal to or greater than 1.96 were within the age group forty-five to fifty-four. For that group, a positive own-wage elasticity is exceeded by a negative husband's income elasticity. The net effect for this group is a small projected decline in participation resulting from real-wage growth and a small increase resulting from an increase in the wage ratio. For the other black groups, larger declines were projected under all three scenarios. These results are generally consistent with the lack of growth in the participation rates of black wives.

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6. One effect of this would be that more women would be in cyclically vulnerable occupations and industries. As a consequence, their layoff rate might rise but they may be less likely to leave the labor force.

From the set of projections provided here, it appears that the recent advances in techniques for estimating the effect of wages on participation show considerable promise for helping to project future labor force growth. However, at this stage, they are best used for producing ranges rather than point estimates, and for large groups rather than for groups by detailed age or race. With these restrictions, they are quite useful for beginning the process of making labor force projections explicitly conditional on the path of future wages. They suggest that real-wage growth and women's share of the gains should be quite important in determining the number of prime-age married women who will be added to the labor force by 1990.

The decision to participate in the labor force is influenced by non-economic factors as well. In particular, many married women and mothers of young children must balance the rewards from paid work against potential role conflict. There is considerable evidence that this conflict is becoming a less serious barrier to participation. The next chapter reviews this evidence and considers the implications of further attitudinal changes on the growth of the female labor force.

Chapter 4. PROJECTING FEMALE LABOR FORCE PARTICIPATION FROM SEX-ROLE ATTITUDES

Beliefs and attitudes about the appropriate activities and behavior for men and women in our society have changed greatly during the last decade. Apparently this shift in attitudes has not been restricted to select subgroups of the population; women from all walks of life have undergone similar changes in beliefs since the mid-1960s (Mason et al., 1976). Increasing acceptance of nontraditional, and especially nonfamilial, roles for women has been credited with causing, or at least facilitating, the rapid rise in female labor force participation over the last five to ten years, since the less traditional a woman's outlook, the more likely she is to be currently employed and to have a history of labor force activity. If changing attitudes do indeed result in more female workers, knowledge about this relationship may be of use in projecting employment of women during the next several decades. Since women's attitudes appear to have a strong association with their market activity, such attitudes should be assessed for their possible usefulness, along with other economic, social, and demographic variables, in projecting female labor force behavior.

In this chapter, evidence on the causal connection between sex-role attitudes and employment of women is presented and evaluated. The effects of sex-role attitudes on labor force participation are reviewed, and the impact of these views is compared among various subgroups of women. Changes in sex-role attitudes through the end of the next decade are projected. Information on the relationship between attitudes and labor market activity is used to make conditional projections of female labor force activity participation to 1990.

The Relationship between Sex-Role Attitudes and Female Employment[7]

Most studies of employment of women which have included a measure of attitudes toward sex roles have found these beliefs to strongly predict market

7. While some analyses of the effect of sex-role attitudes on the labor market activity of women use labor force participation as the measure of this activity, most use whether the women in question are currently employed. Since a small proportion of women in the labor force are unemployed at any point, this discrepancy should have little substantive impact.

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behavior, whether this is defined to mean current participation (Dowdall, 1974), plans for work in the future (Waite and Stolzenberg, 1976), or amount of recent employment (Egge and Meyer, 1970). The particular aspect of sex-role attitudes that is considered seems to make little difference. The woman's feeling about the propriety of employment of mothers of young children is a commonly used indicator of sex-role attitudes (Mason et al., 1976; Mason and Bumpass, 1975; Retert and Bumpass, 1974; U.S. Dept. of Labor, 1973; U.S. Dept. of Labor, 1971). One study (Morgan et al., 1966) reports the husband's views on this subject to be predictive of his wife's employment. Another frequently used measure is the woman's beliefs about the effect that labor force participation of wives has on their families (Waite and Stolzenberg, 1976; Dowdall, 1974).

While the measures of sex-role attitudes described briefly above deal with only one dimension of beliefs about appropriate roles for the sexes--i.e., whether women should work--this dimension is clearly the most salient for women making decisions about employment. Views on other aspects of sex roles, such as division of labor within the home, marital power and decisionmaking, childbearing and child rearing choices, or women's rights on the labor force, may bear on labor force behavior but should do so indirectly, perhaps by making employment harder or easier for the woman involved. For this reason, and because the impact of these other dimensions of sex-role attitudes on women's labor market activity has never been systematically analyzed, only attitudes toward employment of women will be examined here. Two kinds of questions are typically used to assess attitudes toward work by women as a group. First, respondents are asked whether, in their opinion, women should work, and if so, under what conditions. The conditions may relate to the presence of young children, the woman's desire to work, her husband's attitude, or a need for the money. The second type of question asks for views on the effect of employment of married women on their families, e.g.: Does work by wives weaken marital relationships or harm preschool children? Do working wives neglect their families? Presumably, individuals who feel that women should not work under certain circumstances base that opinion on the belief that employment of women has some negative consequences for the woman, for her family, or for society as a whole. The more negative consequences perceived or the more serious the consequences are felt to be, the less likely the person should be to approve of work by women in general. Thus, attitudes about the propriety of women's employment and attitudes about the impact of this employment may be interpreted as reflecting the same underlying structure of beliefs.

Those who believe that women in general should hold jobs if they want to, and who believe that no one is harmed if they do so, are substantially more likely to be employed than are those who are less accepting of women's role in the labor market. In 1967, the first year of the National Longitudinal Survey of Mature Women Thirty to Forty-Four (NLS), married women who expressed "permissive" attitudes toward employment of mothers of school-aged children had labor force participation rates about twenty-five percentage points higher than did those who were "opposed" to such employment (Egge and Meyer, 1970, p. 71). This relationship held for white and for black wives, with and without young children. A similar finding was reported when number of weeks in the labor force during the previous year was used as the measure of market activity. However, no effect of sex-role attitudes on current labor force participation was found among respondents in the National Longitudinal Survey of Young Women in 1968 except among white married women who themselves had young children. Since the questions asked relate to views on the propriety of work by mothers of young children, it is understandable that there is little effect on the current work choices of those who are unmarried or childless.

The relationship between attitudes favorable to employment of women and actual work decisions found when no other factors were controlled also appears when controls for social, economic, and demographic factors are introduced. Retert and Bumpass (1974) report that if a woman believes that preschool-age children are not harmed by their mother's working, then the probability that that woman held a job when her last child was less than two years old increases by nineteen percentage points, net of the effect of structural, economic, and life cycle variables. A similar relationship was found between believing that a mother can return to work when her child is less than two years old and actual employment of the woman during that period.

There are, however, theoretical and empirical reasons for believing that the impact of a woman's attitudes on her own employment choices may vary according to her socioeconomic status and her income. Dowdall (1974) hypothesizes that attitudes about whether women should work have less impact on the labor market decisions of wives with low family incomes--those for whom job holding is presumably less discretionary--than for others. In this study, the subjects were white married women fifteen to sixty-four years old who had borne at least one child and were living in Rhode Island. They were asked a series of six questions about married women's working under a variety of circumstances. Five of these items were used to form a Guttman scale of sex-role attitudes. The

present employment status of the woman was found to depend more heavily on these attitudes than on her husband's income, the age of her youngest child, or her educational attainment. A one-point change in the six-point attitude scale was associated with a thirteen percentage point increase in the probability of current employment. In addition, only a weak association was found between these other variables and the wife's sex-role attitudes. Views on employment of wives were found to depend on the woman's family income, as hypothesized. Sex-role attitudes appear to be especially significant inputs to employment decisions among women with moderate and high family incomes, those for whom work is perhaps more discretionary. For low-income wives, these beliefs have a slightly smaller effect on labor market behavior.

A study by Sampson et al. (1975) provides some support for Dowdall's argument that attitudes should matter less for women who may be under financial pressure to work because of low family incomes. In families which were classified as "disadvantaged," the woman's agreement with the statement that "It is all right for a woman to work outside the home just because she likes to" had no significant influence on the likelihood that she was currently employed. Among "typical" families, this same measure was significantly related to labor force status; a one-point change in the five-point scale was associated with a five percentage point rise in the probability of current employment.

Blacks are the one important subgroup of the population for which little is known about the influence of sex-role attitudes in employment decisions. A number of studies on this issue using samples of white women have been done (Dowdall, 1974; Retert and Bumpass, 1974), but comparisons between the races are rare. In Dual Careers, Egge and Meyer (1970) report no differences between black and white married women in the zero-order relationship between attitudes toward the propriety of employment of mothers of young children and either current labor force participation or weeks in the labor force during the last year. Among the NLS young women, however, a relationship between these attitudes and current labor force status was found for white married women with young children, but not for their black counterparts. Since social, economic, and demographic differences between the races are substantial, the absence of controls for these factors in these studies of the NLS mature and young women is a serious problem. Only one analysis which included these essential controls could be found. Kim (1971), using the 1967 NLS Mature Women Survey, estimated the effect of attitudes toward work by mothers of young children on labor force status separately for black and for white married women. Controls for important economic, but not for social or demographic, factors were included.

The metric, partial regression coefficient for attitudes toward work by mothers was not significantly different for black and white married women (.02 versus .03). These results imply that a shift in sex-role attitudes from strongly negative to strongly positive would result in an increase of from twenty-four to thirty-six percentage points[8] in the probability that an individual woman was in the labor force. While this is scanty evidence on racial differences in the impact of work attitudes on labor market choices, it indicates that such differences as exist may be modest.

Attitudes toward employment of women, besides influencing current labor force status, also have been found to affect long-range employment plans. Waite and Stolzenberg (1976) used the 1968 to 1973 waves of the National Longitudinal Survey of Young Women fourteen to twenty-four years old in 1968. After controlling for the effect of important social, economic, and demographic factors, they found that the woman's beliefs about the impact of employment of a wife on her family had a strong effect on plans for work at age thirty-five. These work attitudes, measured by a scale which ranged from nine to forty-five, had the same effect on the employment plans of never-married women as on the plans of those currently married and living with their husbands. For both groups of women, a hypothetical change from one end of the scale to the other, from strongly negative to strongly positive, would increase by fifty-eight percentage points the likelihood that the woman intended to hold a job at age thirty-five.

The effect of attitudes toward sex roles on plans for work at age thirty-five was found by Stolzenberg and Waite (1977) to vary little among the NLS young women by age or stage in the life cycle. This is shown by the unstandardized, partial regression coefficients for work attitudes presented below.

Age in 1973		Life cycle stage, 1973	
19 & 20	.01730	Never married, no children	.01543
21 & 22	.01795	Married, no children	.02050
23 & 24	.01679	Married, some children, expect more	.01501
25 & 26	.01348	Married, children, expect no more	.01532
27 & 29	.01241		

8. The scale used by Kim ranged from three to fifteen. Thus, for black women the metric coefficient of .02 implies that a change from one end of the scale to the other--a change of twelve points--would increase the probability that an individual woman was in the labor force by twenty-four percentage points. For white women the comparable figure was thirty-six percentage points.

Virtually all women expect to be wives and mothers by the time they are thirty-five. Therefore, the impact on young women's intentions to hold a job when they are thirty-five of their beliefs about the effect on families of work by wives and mothers does not vary by their current age or status. Only 6 percent of the NLS young women reported in 1973 that they expected to remain permanently childless (Suter and Waite, 1977). These same work attitudes should have little effect on the current labor force status of young women in certain life cycle stages or ages, but large effects in others, as Egge and Meyer (1970) report.

The one other type of attitude toward work which is commonly used in analyses of female labor force participation must be mentioned here. The attitudes of the husband toward his wife's working have been found in a substantial number of studies to strongly predict her current employment status. However, these attitudes, which might more accurately be called tastes or preferences, are difficult to interpret. Since questions on the husband's attitude toward the actual or potential employment of his spouse are invariably asked of the wife herself, what is actually obtained is the woman's perception of her husband's views. One would expect this perception to be influenced by what the wife wants to do or feels she should do. In addition, characteristics of the individual situation can affect responses; for example, even if the husband's attitudes are accurately represented by the wife, these may reflect his views of sex roles, the special needs of the family, the conditions of the local labor market, his wife's preferences, and her earning potential, among other factors. And, as several researchers have argued (Cain, 1966), the husband's attitudes may merely reflect the current situation. Thus, the husband's attitudes toward work outside the home by his own wife appear to be of little use for projecting female labor force activity and will not be discussed further.

Causality

Some researchers have argued that attitudes toward employment are unimportant in explaining work behavior of women. Bowen and Finegan (1969, p. 240) comment on "how much progress it seems possible to make in accounting for the increased participation of married women over the postwar period without falling back on such explanations as 'changes in attitudes toward the working wife.'"

While the body of research summarized above clearly demonstrates the strength and pervasiveness of the connection between sex-role attitudes and employment of women, causal direction has not been established. Attitudes

toward the propriety of wives' and mothers' employment may influence the actual behavior of the woman or, alternatively, may simply reflect the reality. The somewhat slender evidence on this issue seems to indicate that a woman's views on the wisdom of mothers' labor force participation have a substantial causal impact on her own employment. First, the fact that attitudes measured at one time tend to be good predictors of later behavior indicates that beliefs do not merely reflect the current situation. Labor market entry and withdrawal from 1967 to 1969 were found to be strongly related among white women in the NLS Older Women Survey to 1967 attitudes toward employment of mothers. At least among white women, those who were initially opposed to employment of mothers were substantially more likely than others to have left the labor force during the next two years (Kim and Murphy, 1973). The relationship between labor force withdrawal and sex-role beliefs is weaker for black women. Among white women who were not in the labor force in the earlier year, those who favored paid work by mothers were more likely than those opposed to have entered the labor market. The predictive validity of attitudinal indicators, at least over a two-year period, appears to be substantial.

In a study of white, married, female college graduates, Spitze and Spaeth (1976) examined the effect of attitudes of the couple, measured as a composite of the separate views of the husband and the wife, on what they call the wife's investment in human capital. Women who were either enrolled in school or employed were considered to be investing in human capital; others were not. The attitudes of the couple in 1964 were found to have an effect on the wife's human capital investment in 1968, four years later, almost as large as the impact of these attitudes on her 1964 human capital investment. That is, the couple's attitudes in 1964 toward employment of the wife influenced her job and schooling choices in 1964 and in 1968 to a similar extent. Thus, work-related attitudes are highly predictive of behavior several years later. While one could not argue, on the basis of these few studies, that causality runs only and always from sex-role attitudes to labor market behavior, it seems reasonable to conclude that women's beliefs do have some substantial causal impact on their employment decisions.

Changes in Sex-Role Attitudes

Up to this point the discussion has centered on the relationship between sex-role attitudes and labor market behavior of women, and the question of causality in that relationship. How can the conclusions reached in the research discussed above be used to provide information on the future course of

female labor force participation? At least one researcher (Ferber, 1977) has explicitly argued that changes in sex-role attitudes have been a prime mover behind the recent rapid influx of wives into the job market. Ferber hypothesizes that while other possible causes of past increases in employment of married women--for example, expansion of industries employing females, more education, fewer young children, changing technology of housework--are likely to be relatively unimportant in the future, attitudes toward sex roles could continue to change, thus resulting in a continuation or even acceleration of the trend toward more work by women. The next question is: What sorts of shifts in sex-role beliefs can be expected in the near future? To begin to address this question, changes in sex-role attitudes in the past are reviewed.

While the literature on female labor force participation is full of references to changing tastes, values, norms, and attitudes, there are only two studies which try to estimate the extent of these changes. Oppenheimer (1970) used poll data to examine changes in attitudes about women in the labor force from the 1930s to 1960. By the 1930s, employment of single women was generally accepted, but that of married women was not. During the 1930s, attitudes toward work by wives were generally negative; less than 25 percent approved of married women holding a job and, depending on the circumstances presented in the attitude question, from 40 to over 80 percent disapproved. Oppenheimer found relatively little alteration of views toward market work by married women from 1937 to 1945, despite the large numbers of women employed during wartime. However, when respondents were asked about job holding by wives for "patriotic" reasons during wartime, approval rose considerably. This conditional acceptance of work by married women was interpreted by Oppenheimer as reflecting considerable flexibility in these sex-role attitudes. From 1949 to 1960, poll data on attitudes toward market work by wives were not collected, perhaps because the issue became less salient. A survey done in 1960 shows that during the intervening years, approval of employment of married women increased very little. In that year only 34 percent of the husbands interviewed held favorable attitudes toward work by wives (Oppenheimer, 1970, p. 50).

A study by Mason et al. (1976) used data from five sample surveys between 1964 and 1974 to investigate changes in the sex-role attitudes of women in the United States. To insure comparability between surveys, pairs of samples were analyzed after adjusting each sample to match the next one as closely as possible. The results of this study indicate that substantial change in the direction of more egalitarian beliefs about sex roles occurred in the last

decade. The change in sex-role attitudes which occurred between 1964 and 1974 was not confined to select groups of women, but apparently affected most segments of the population. The authors conclude that:

> While the sex-role attitude changes we observed appear to have been "ideological" (that is, not simply a product of women's personal circumstances and positions within society), we found little evidence that these changes were caused by the women's movement and its rise (Mason et al., 1976, p. 594).

Findings of the Mason study can be used as the basis for projections of changes in sex-role attitudes in the future. In Table 9 under the column headed Warm Relations is shown the percent of respondents who expressed agreement with the statement that "a working mother can establish just as warm and secure a relationship with her children as a woman who does not work." Figures are presented for each of three pairs of surveys done between 1964 and 1974. Also given for the 1970-1973 and 1970-1974 comparisons is the mean of a scale of sex-role attitudes which comprises eight questions on various aspects of sex roles. In the bottom panel of Table 9 is presented change from 1968 to 1972 in the mean on a scale of attitudes of the NLS young women toward propriety of work by mothers of young children (Suter and Waite, 1977). These scales have been converted to a common metric, 1 to 100, for comparability. Annual change in sex-role attitudes has been calculated. As the reader will note, the amount of change in sex-role attitudes shown depends on the surveys compared and the questions used. However, in the comparisons reported by Mason et al., a general pattern does seem to exist. With the exception of responses to the Warm Relations question in the 1970-1973 comparison, annual changes in sex-role attitudes were fairly similar, ranging from 3.2 to 5.0 points. However, the only longitudinal survey included in Table 9, the 1968 to 1972 comparison based on the NLS young women, shows an annual change of only 2.4 points during that period. No one of these comparisons is obviously better than the others. The true rate of change during the late 1960s and early 1970s probably lies somewhere in the ranges shown in Table 9.

Projecting Female Labor Force Participation

The information on the relationship between sex-role attitudes and market activity of women, and on recent changes in these attitudes, will be used to make tentative projections in the following way. Several assumptions about the rate of change in sex-role attitudes are used to produce a range of estimates of the distribution of these attitudes in 1975, 1980, 1985, and 1990. As there is no empirical basis for estimating change in the impact of sex-role

TABLE 9

Attitudes toward work by mothers and sex roles: 1964-1974
(All scales run from 1 (disapprove) to 100 (approve))

	Warm relations	Sex-role attitude scale
1964[a]	53.5	n.a.
1970	72.6	n.a.
Change: 1964-1970	19.1	n.a.
Annual change	3.2	n.a.
1970[b]	48.4	52.8
1973	53.5	66.3
Change: 1970-1973	5.1	13.5
Annual change	1.7	4.5
1970[c]	56.4	55.5
1974	73.1	75.3
Change: 1970-1974	16.7	19.8
Annual change	4.2	5.0
1968[d]	n.a.	46.3
1972	n.a.	55.8
Change: 1968-1972	n.a.	9.5
Annual change	n.a.	2.4

SOURCES: The 1964-1970, 1970-1973, and 1970-1974 comparisons are taken from Mason et al. (1976) unpublished tabulations. The 1968-1972 comparison is taken from Suter and Waite (1977).

a. The 1964-1970 sample includes married women college graduates 23-29.

b. The 1970-1973 sample is restricted to once married, currently married women who are 25-34, who have been married 5 to 15 years, and who currently live in the South and do not live on farms.

c. The 1970-1974 sample includes ever-married women, 18-44, who reside in SMSAs of 1 million or more in the Northeast or North-Central states, who are currently employed or have worked within 24 months of the interview, and who are not attending school.

d. The 1968-1972 comparison includes all respondents in the National Longitudinal Survey of Young Women 14-24 in 1968 who answered the relevant questions.

attitudes on work by women, this effect will be assumed to remain constant. While there is no compelling evidence that this is the case, the absence of any research on such changes precludes estimation of them. The assumption is also made that no substantial change in marital and childbearing patterns occurs by 1990. The effect of sex-role attitudes on labor market choices, in the form of an unstandardized, partial regression coefficient, is then applied to the various projections of the mean level of such attitudes. The result is an estimate of the impact that continued increases in acceptance of nontraditional roles would have on the future level of work by women, given the limitations mentioned above. The first step in this process is to generate estimates of mean levels of sex-role attitudes for various years.

Rates of change in the percentage of women giving egalitarian responses to questions on the effect of employment of a mother on her family, found by Mason et al., will be used along with changes in a general sex-role attitude scale to generate one estimate of the future course of sex-role beliefs. This estimate is based on the assumption that the "current" rate of change in beliefs about sex roles will continue unabated. But one could reasonably argue that recent changes in American society--for instance, the extremely low birthrates of the past few years, the declines in the average number of children expected by young women, increases in labor force involvement of women--might cause an acceleration in the tempo of liberalization of beliefs about roles for the sexes. Consensus on the issue of proper sex roles is not a logical impossibility. Such a consensus existed during the 1930s when it was generally thought that married women should not work (Erskine, 1970). There is no structural reason that employment of wives should not generally be considered acceptable. In 1970, 95 percent of "ever-married" women eighteen to forty-four years old thought that men and women should be paid the same money if they do the same work (Mason et al., 1976, p. 586). Such a high level of agreement in this one aspect of sex-role attitudes indicates that complete consensus is possible, perhaps increasingly likely, on the acceptability of labor force participation of women. The question may be not so much whether general agreement will be reached, but how soon.

While it seems unlikely that in the next two decades acceptance and approval of labor force participation of wives and mothers will decrease significantly, further increases are not assured. The "low" projection of changes in sex-role attitudes, therefore, assumes no further liberalization of beliefs of individual women. However, older cohorts tend to also have those characteristics, such as relatively low educational attainment, labor

force activity, and average socioeconomic status, that are associated with traditional sex-role attitudes (Huber et al., 1978). As these cohorts age, move out of the labor force and into retirement, and are replaced by younger cohorts with more egalitarian attitudes toward sex roles, the mean acceptance of nonfamilial roles for women in the population of women in the prime work years should increase, even in the absence of further change in the attitudes of individual women.

Three estimates of change in sex-role attitudes between the mid-1970s and 1990 will be made. The range of annual changes in views on sex roles, reported in Table 9, form the basis for a high and a moderate estimate of the future rate of change. The high estimate assumes an annual rate of change in sex-role attitudes of 5.0 points, approximately the rate of change observed between 1970 and 1974 in Warm Relations and between 1970 and 1973, as well as between 1970 and 1974 in the scale of sex-role attitudes. The moderate estimate assumes the rate of change found from 1968 to 1972 among the NLS young women, 2.4 points per year. The low estimate assumes no further change from the early 1970s in the beliefs of individual women, but does assume changes in the mean attitudes of the female population eighteen to sixty-four, the prime working ages, as a result of the succession of cohorts. The high and moderate estimates assume the rates of change in attitudes of individual women stated above, in addition to shifts in mean sex-role attitudes due to the replacement of older and more traditional by younger and more liberal cohorts.

Since all estimates of the future distribution of sex-role attitudes begin with that change which results from the succession of cohorts, estimating the magnitude of that shift is the logical place to begin. To estimate how much average population attitudes will change through the replacement of an old cohort with a young cohort, one needs to know to what extent the attitudes of these two groups differ. None of the studies of attitudes toward sex roles that have been reviewed up to this point include information on differences in these beliefs by age. A rough idea of age variations in attitudes on this topic can be obtained by examining a recent study of opinions on the Equal Rights Amendment (ERA). Huber, Rexroat, and Spitze (1978) present the distribution, by age, of responses to several questions on attitudes toward women's work roles. The sample on which this study is based is representative only of the state of Illinois.

Illinois may be somewhat more conservative than the nation as a whole: It has not yet ratified the ERA. However, differences in sex-role attitudes between Illinois and the nation as a whole should be largest at the oldest

ages. If this is the case, then the estimate of the effect of succession of cohorts on sex-role attitudes is an overestimate of the true effect. However, this bias, if it exists, should be relatively modest. The table below gives the percentage of female respondents in the Huber survey giving egalitarian responses to the two questions on work-related sex-role attitudes that are most relevant here (Huber et al., 1978, p. 22). These questions asked whether women by nature are happiest at home, and whether it is more important for the husband than for the wife to have a good job. Disagreement with each of these questions constituted an egalitarian response.

Percent disagreeing with statement:

Age	Women are happiest at home.	More important for husband to have a good job.
Total, all ages	54	17
18-29	68	35
30-44	61	24
45-54	43	5
55 and over	37	4

The mean percent giving liberal or egalitarian responses to these two questions was about fifteen percentage points higher than average for those under thirty and about twelve percentage points lower than average for those forty-five or older. The assumption will be made that a similar age pattern of sex-role attitudes exists for the adult female population as a whole. From this assumption it is a simple matter to calculate the amount of change in average sex-role attitudes in this population due to cohort succession. Table 11 gives the population estimates for 1975 done by the U.S. Bureau of the Census and the Series II, or intermediate, projections of the female population eighteen to sixty-four in 1980, 1985, and 1990. As a starting point in the projection of sex-role attitudes, the mean of the sex-role attitude scale found in 1973 and in 1972 was used (see Table 9). Thus, 59 percent of the adult female population is assumed to hold egalitarian or liberal views on sex roles in general and on work by women in particular. A figure somewhat lower than the highest percent holding egalitarian views shown in Table 9 was chosen, since the samples on which all the comparisons in Table 10 were based were substantially younger, and probably more accepting of nonfamilial roles for women, than the population of females eighteen to sixty-four. Thus, the

TABLE 10

Partial, unstandardized regression coefficients relating sex-role attitudes to women's plans for future labor force participation and to current labor force participation

Plans for age 35[1]	coefficient b	Regression-standardized* percentage point change
All marital statuses		
Never married	.015	.0054
Married, no children	.021	.0076
Married, children, expect more	.015	.0054
Married, children, expect no more	.015	.0054
All marital statuses	.015	.0054
Age		
19-20	.017	.0061
21-22	.018	.0065
23-24	.017	.0061
25-26	.013	.0047
27-29	.012	.0043

Current labor force participation		
Married women 30-44[2]	b	Regression-standardized percentage point change
White	.03	.0036
Black	.02	.0024
White married mothers 15-64[3]	.129	.0064
Married mothers[4]	.05	.0020

*All scales were standardized to run from 1 (disapprove) to 100 (approve). A one-point change in sex-role attitudes on this scale increases the probability that an individual woman plans to work at age 35 by .54 percentage points, for example.

SOURCES: 1. Waite and Stolzenberg (1976); Stolzenberg and Waite (1977); and unpublished calculations.

2. Kim (1971, pp. 59-61).

3. Dowdall (1972, p. 252).

4. Sampson et al. (1975, p. 274) "typical" families.

TABLE 11

Series II projections of the female population 18 to 64 years old: 1975-1990

Age	(Population in thousands) 1975	1980	1985	1990
Total 18-64	63,646	68,734	72,690	75,484
18-19	4,143	4,222	3,630	3,555
20-24	9,559	10,406	10,194	8,927
25-29	8,499	9,509	10,341	10,128
30-34	7,071	8,681	9,714	10,545
35-39	5,947	7,157	8,774	9,793
40-44	5,716	5,987	7,201	8,815
45-49	6,062	5,638	5,908	7,098
50-54	6,215	6,008	5,596	5,863
55-59	5,511	5,925	5,732	5,339
60-64	4,923	5,201	5,600	5,421

SOURCE: U.S. Bureau of the Census, 1975c, pp. 67-82.

percent holding egalitarian sex-role attitudes in 1975 is assumed to be distributed as follows:[9]

Percent holding egalitarian sex-role attitudes in 1975, by age

18-29	74%
30-44	59%
45-64	47%

By 1980, the group sixty to sixty-four in 1975 has passed out of the population and a new group of eighteen to twenty-two year olds has entered the population. These new entrants to the prime working ages are assumed to hold the same sex-role attitudes as those eighteen to twenty-two in 1975. The other age groups

9. It was assumed that the pattern of age differences in sex-role attitudes found by Huber et al. (1978) held for the population as a whole. So beginning with the mean percentage of the female population holding egalitarian sex-role attitudes found by Mason et al. (1976), it was calculated that this percentage would be about fifteen percentage points higher for the youngest women and twelve percentage points lower for the oldest. These calculations produced the figures in this text table.

are assumed to carry their 1975 sex-role attitudes with them as they age. Thus, the distribution of beliefs about sex roles in 1980, 1985, and 1990 by age in those years is as follows:

Percent holding egalitarian sex-role attitudes, by age

	1980	1985	1990
74%	18-34	18-39	18-44
59%	35-49	40-54	45-59
47%	45-64	50-64	55-64

The percentage holding egalitarian views in each year can then be calculated as a simple weighted average of this distribution. These percentages, and the resultant change in sex-role attitudes during these years, are given in Table 12 as the low estimate due only to cohort succession. The high and moderate estimates of beliefs about sex roles are obtained by applying the assumed annual change in attitudes, given above, to the number of years in the period and adding this change in individual attitudes to the shifts due to cohort succession.

TABLE 12

Estimated percent holding egalitarian views on sex roles and change in sex-role attitudes: 1975-1990

Percent holding egalitarian views[a]	1975	1980	1985	1990
High (5.0 points/yr)	59.0	87.4	100.0	100.0
Moderate (2.4 points/yr)	59.0	74.4	89.5	100.0
Low (cohort succession only)	59.0	62.4	65.5	68.2

Change	1975-1980	1980-1985	1985-1990
High	28.4	12.6	-
Moderate	15.4	15.1	10.5
Low	3.4	3.1	2.7

a. Calculated by assuming only cohort succession for the low estimate, cohort succession plus an increase of 2.4 percentage points per year in percent holding egalitarian attitudes for the moderate projection, and cohort succession plus an annual change of 5.0 percentage points in the percent holding egalitarian attitudes for the high projection.

Once the distribution of attitudes toward sex roles has been projected, the shifts in female labor market activity implied by the increased acceptance of nontraditional roles for women can be estimated following a procedure used by Bowen and Finegan (1969, pp. 207-241). The regression-standardized change in the probability of labor force participation due to a one percentage point change in sex-role attitudes, derived from a cross-sectional regression of labor market behavior on these attitudes and other factors, is multiplied by the change in attitudes during the relevant period. Table 10 shows these coefficients for various marital and child status groups, as well as for women of various ages. As the reader will note, these coefficients differ very little between groups. The effects of sex-role attitudes on plans for labor force participation at age thirty-five shown in the upper panels of Table 10 are very similar to the effects of sex-role attitudes on current labor force status shown in the lower panels. When all scales are standardized to range from 1 to 100, the effects found with different samples and differing control variables do not vary much, ranging from .002 to .0064. An intermediate value was chosen for use in projecting female labor force participation. The coefficient for all marital statuses in the upper panel of Table 10 was selected, as it fell between the extremes shown in the table. The regression-standardized, percentage point change in labor force participation associated with a one percentage point change in sex-role attitudes, .54, was applied to the estimates of change in these attitudes shown in the lower panel of Table 12. The results of this procedure are given in Table 13.

The calculations in Table 13 assume that changes in the sex-role attitudes of all females eighteen to sixty-four have the same impact on their labor market choices. One could argue, however, that these attitudes only influence the market choices of married women and perhaps only those of married women with children at home. Clearly the work decisions of a woman who feels that mothers should not work will not be influenced by her beliefs if she has no children. And most unmarried women with no children have no source of support but their own earnings. Their beliefs about sex roles should have little impact on their work decisions. So clearly, views on sex roles influence the labor force activity of married women with children at home, but not that of single women with no children. The impact of these beliefs on the formerly married probably lies somewhere between these two extremes. In 1975, 16 percent of women eighteen to sixty-four had never married, 69 percent were currently married, and the balance, 15 percent, were separated, widowed, or divorced (U.S. Bureau of the Census, 1975d, p. 8). In that same year, 63 percent of all

TABLE 13

Implied increases in female labor force participation due to change in attitudes toward sex roles: 1975-1990

	Increases in female labor force participation[a]			
	1975-1980	1980-1985	1985-1990	1975-1990
High	15.3	6.8	-	22.1
Moderate	8.3	8.2	5.7	22.1
Low	1.8	1.7	1.5	5.0
Adjusted for marital and child status				
High--all ever-married women[b]				
High	12.9	5.7	-	18.6
Moderate	7.0	6.9	4.8	18.6
Low	1.5	1.4	1.3	4.2
Low--currently married women with family members <18 only[c]				
High	6.7	3.0	-	9.7
Moderate	3.7	3.6	2.5	9.7
Low	0.8	0.7	0.7	2.2

a. Calculated by applying the regression-standardized, percentage point change in labor force participation associated with a one percentage point change in sex-role attitudes (.54) to the estimate of change in sex-role attitudes shown in the lower panel of Table 12.

b. Assuming that increases in sex-role attitudes influence the labor force behavior only of ever-married women (84 percent).

c. Assuming that increases in sex-role attitudes influence the labor force behavior only of currently married women with family members under 18 years old (44 percent).

families having husband and wife in which the head was less than sixty-five years of age had a member under eighteen years old (U.S. Bureau of the Census, 1975e, p. 18). Thus, sex-role attitudes should affect the work decision of a maximum of 84 percent of females eighteen to sixty-four, all those ever married, and a minimum of 44 percent, those currently married with family members under eighteen. Applying these percentages to the calculations in Table 13 gives the range of change in female labor force participation corrected for marital and child status, shown in the bottom panels of Table 13. These high and low figures may be considered as bounding the range of changes in female labor force participation due to increasing acceptance of nonfamilial roles for women.

These results suggest that, given the substantial number of assumptions made, if no further changes have taken place in individual attitudes toward sex roles since the early 1970s, succession of cohorts should result in an increase in female labor force participation[10] by 1990 of two to four points. This is a modest effect. If one assumes a continued trend toward acceptance by individuals during this period of work roles for women, then a rise in female labor force participation of nineteen to twenty-two points is implied by these results. Several statements about these results must be made here. First, changing sex-role attitudes can lead to increases in the rate of participation of women in the labor force only until complete acceptance of nonfamilial roles for women is achieved. This ceiling effect is responsible for the slowing of the growth in female labor force activity after 1980 under the high projections. This ceiling also limits the total amount of growth in labor market activity of women due to changes in sex-role attitudes as measured here. Succession of cohorts plus increasing acceptance by individuals of work roles for women may directly result in a rise in female labor force participation of about twenty points.

Second, changes in sex-role attitudes may increase the proportion of women who want jobs at the same time that economic conditions decrease the number of jobs available. The discussion in this chapter has focused on the supply of women workers. But clearly women (and men) who want to work must find someone to hire them before they can become employed. Demand for female workers is for this reason an important determinant of women's labor market

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10. Since the coefficients shown in Table 10 refer to plans for work at age thirty-five, and some of those who would like to work will be unable to find a job, these coefficients can be interpreted as reflecting the effect of sex-role attitudes on the probability an individual woman is in the labor force.

activity. Oppenheimer (1970) argues that much of the increase in female labor force participation from 1940 to 1960 was due to rising demand rather than to an increased supply of women workers. Some evidence indicates that traditionally female occupations will not expand sufficiently in the next decade or two to absorb the increasing number of women available for employment (Oppenheimer, 1972). But the supply of young male workers will decline from the present to 1990 because the small cohorts born after the baby boom are reaching adulthood (Easterlin, 1978). Thus, it could be the case that while a decreased supply of young, single, female workers forced employers to hire older married mothers during the 1950s, a diminished supply of young male workers in the 1980s may pressure bosses to hire women for positions traditionally filled by men. But such speculation must remain just that. Explicit consideration of the role of demand factors in changes in female labor force participation is outside the scope of this chapter. Finally, the indicators of sex-role attitudes used in this chapter and in virtually all research on this subject ask whether the person feels that working by a wife and mother harms her family in some way. This type of question is getting at the presence or absence of a negative feeling about employment of women; but the existence of a negative feeling about women not working is never explored. That is, traditional sex-role beliefs specify that a man should work all his life to support himself and his family unless extraordinary circumstances intervene. Similar beliefs about the moral responsibility of a woman to work to support herself and her family could develop. In fact, there is anecdotal evidence indicating that some social pressure is being brought to bear by friends and spouses on young women who do not hold a job. The status of the housewife and mother roles may be declining as more women enter the labor force and birthrates continue to fall. Such changes in sex-role attitudes, which are not dealt with by any of the measures examined here, could lead to increases in female labor force participation that are much larger than those projected.

CHAPTER 5. ARE THE TRENDS LIKELY TO CONTINUE?

The research reported in Chapters 3 and 4 on the determinants of labor force growth provides strong support for the expectation that the participation rate of women, at least in the central age groups, will be much higher in the year 1990 than it was in 1977. How much higher will depend to a considerable extent on the growth in real wages during this period, on women's share of the wage gains, and on the prevailing attitudes toward the role of women. The estimates reported in Chapter 3 indicate that an annual growth in real wages of 2 percent between 1975 and 1990, with no change in the ratio of female to male wages, would add five to ten percentage points to the participation rate of wives during that period. The estimates reported in Chapter 4 indicate that the replacement of older cohorts of women with the younger cohorts who have less traditional attitudes toward the role of women would add two to four percentage points. These were estimated from separate equations and, therefore, may not be additive. In any event, these fairly conservative assumptions yield substantial growth in participation through 1990.

More importantly, the studies suggest three potential sources of much greater increases. First, if real wages grow at a faster pace, this would add to the estimated participation rate growth of married women. A 1 percent higher annual growth rate was estimated to add another three to five percentage points to the 1990 projection. Second, if the ratio between female and male wages begins to narrow, very large participation effects should be anticipated. An increase in the ratio from 0.59 to 0.65 was estimated to add five to fourteen points to the projection. Third, if sex-role attitudes continue to liberalize during the next decade, this would provide a strong stimulus to participation, especially among married women with young children. Complete acceptance of nonfamilial roles for women was estimated to add at least seven points to the projected participation rate.

The other three variables that were included in the model presented in Chapter 3 were nonearned income, educational attainment, and unemployment. The growth in nonearned income by 1990 should exert a negative influence, as the income reduces the dependence of the individual on the labor market. There is a lengthy literature on the estimation of this impact (Cain et al., 1974).

However, it is impossible to predict how rapidly the opportunity for public transfers and other unearned income will grow over the next decade, or the conditions that will be attached to their receipt. It seems unlikely that the political climate will be favorable to any large increases in transfer payments to people able to work, but one cannot be certain. Also, to the extent that the implicit tax on transfer payments, such as the one levied on Aid to Families with Dependent Children (AFDC) payments, is reduced, the negative impact on participation would be lessened.

There is a positive correlation between educational attainment and labor force participation. The average educational level of central age women is expected to increase by about 0.3 school years by 1990 (U.S. Bureau of the Census, 1972). By one estimate, this would be associated with a 0.6 percentage point increase in the participation rate of this group, net of its effect on wages (Cain and Dooley, 1976). However, one should be particularly cautious about projecting the impact of educational attainment on participation, since the rewards associated with a given level of education may decline as the average level of education increases. There is some concern that the population may become overeducated for the jobs that will be available, in which case the impact of education on participation may decline.

The state of the labor market in 1990 will also make a difference. In 1977, the national employment rate was 7.0 percent. If the unemployment rate is lower in 1990, this would have a positive impact on participation. Estimates of the cyclical sensitivity of the female labor force vary. Elsewhere, I have estimated that a 1 percentage point reduction in the national unemployment rate would be associated with a 0.6 percentage point increase in the participation rate of women in the central age group (Smith, 1977a). This implies that if the unemployment rate were to fall to 5.0 percent in 1990, the participation rate of this group would be about 1.2 percentage points higher.

An even more difficult factor to take into account is the "keeping up with the Joneses effect." The estimates in Chapter 3 implicitly were based on the assumption that an additional dollar of a husband's income exerted a negative impact on his wife's participation rate, independent of the income levels of other members of the community and independent of their expectations about their own living standards. However, to the extent that one becomes less satisfied with a given standard of living as that standard is exceeded by others, additional sources of income will be sought out. For a family in which the wife is still not in the labor force, she is an obvious source. Thus, a snow-balling kind of effect could be anticipated. As more married

women work outside the home, the relative standard of living of families in which the wife stays home declines.

A model of labor force participation by Michael Wachter addresses a related issue by including a measure of the size of a group's cohort (1977b). Wachter argues that one reason why the participation rate of young women has increased in recent years is that they and their husbands are members of the baby-boom cohort which, because of its large size, has faced increased competition in the labor market, receiving lower wages than anticipated. The wives, within this model, increase their participation in the labor force to bring family income up to their expectations. A similar phenomenon can occur during periods of rapid inflation, as wives enter the labor force to supplement the reduced real earnings of their spouses.

In Part I it was estimated that if the trends in participation from the 1964-1977 period continue and if the 1990 marital and family mix of each age group is the same as it was in 1977, the participation rate of married women ages twenty-five through fifty-four would increase by about one percentage point per year. This group alone accounted for most of the growth in the female labor force projected for the 1977-1990 period. In light of the information about the determinants of labor force growth reviewed in Part II, is this a reasonable projection?

The answer is a qualified yes. It must be qualified because of uncertainty about the future course of variables that have, in the past, had an important influence on the participation decision and because of uncertainty about the quantitative relationships between these variables and participation. If the participation rate of married women in this age group continued at the estimated pace, 66 percent would be in the labor force in 1990. Under the most conservative assumptions used in this study with respect to future wage growth and attitudinal change, this projection would be slightly too high.

At least two of the assumptions that would generate these lower estimates are needlessly conservative. First, there is every reason to expect sex-role attitudes to continue to liberalize. The women who will be entering this age group in 1990 will have been raised during a period in which there are many more working mother role models. It would be unreasonable to expect no further change. Second, there is some basis for optimism that the ratio of female to male wages will begin to rise by 1990. Women, by staying in the labor force longer, are developing increasing work experience which, by itself, may pay off in higher wages, promotion opportunities, and seniority rights, especially if equal employment opportunity laws are vigorously enforced. The key here

is the extent to which the pattern of occupational segregation between women and men is broken. This will be discussed further in Part III.

A disturbing feature of the research reported in Part II is the wide range that must be put around the projections. The criticism of the arbitrary assumptions used in the trend extrapolations can be leveled against projections based on the equations reported here as well. Cain has argued that "forecasters using econometric models end up being just as arbitrary, perhaps more so given the wider variety of conflicting parameter estimates to choose from, no more accurate, and simplicity is sacrificed" (Cain, Forthcoming). He reported new time series estimates of participation rate behavior that would yield still different results (Mitchell, Forthcoming) and suggested that the state of the art did not yet support projections based on behavioral relationships. He recommended instead that extrapolations of the sort made by BLS should be continued, but disaggregated by marital status, as well as age, and with untapered trends that give more weight to recent observations. The methods used in Chapter 2 are consistent with these recommendations, with additional disaggregation by presence of children.

This still leaves the question of how one should assess the results of such extrapolation procedures. Here is where the analysis of the determinants, even when the ranges are wide, can be useful. They at least suggest whether projections of large changes are outside the boundaries of reasonable assumptions about the future course of important determinants of participation. In this case, they are not. They also suggest the kinds of demographic, economic, and social conditions to watch for insights about whether the trends are likely to change. For example, the projections reported here could be adjusted if the ratio of female to male wages began to deteriorate seriously or if new estimates of long-run productivity growth, on which wage gains depend, indicated that the wage growth assumption was too optimistic.

There is absolutely no basis for anticipating that the growth in the female participation rate is about to end. No matter how the projection is made--and this study has examined a rather wide variety of methods--the conclusion is reached that the participation rate of women in the year 1990 will be significantly larger than it was in 1977. The continued movement of women into the labor force raises some important policy issues. These are discussed in the next part of the report.

PART III

POLICY IMPLICATIONS

The continued movement of women into the labor force will result in a much larger total labor force in 1990, with women's share of the labor force larger than it is today. In addition, the projections reported in Chapter 2 indicate that married women and mothers of young children will be a larger part of the female labor force than they are today. Increases in the size of the total labor force, women's share, and the shares of married women and mothers of young children all result in a need to reassess public policies in a number of areas. The purpose of this final part of the report is to examine some of the issues that are likely to be particularly critical over the next decade.

Chapter 6 considers a wide range of issues involving macroeconomic policy, policies and programs to improve the treatment of women in the labor market, and the need to reassess institutions, such as the Social Security system, that were developed under the assumption that husbands would be the sole breadwinners.

Perhaps the single most important numerical result to come out of this study is that the number of working mothers is likely to increase over the next decade by an enormous amount. Many people fear that one adverse consequence of the increasing participation of mothers in the labor force is that their children will not be properly cared for. Chapter 7 provides an examination of the child care needs that will arise by 1990 and considers what might be done by the federal government to assist families with their child care problems.

CHAPTER 6. MACROECONOMIC AND LABOR MARKET POLICIES AND GOVERNMENT INSTITUTIONS

This chapter begins with a brief review of the changes in the female labor force projected to occur between 1977 and 1990 and outlines several general issues arising out of the projected changes. The major part of this chapter is then concerned with several specific federal activities that will be affected by the continued movement of women into the labor force. Our labor force projections were based on the assumption of no major changes in government policies and programs that would affect women's decisions to enter or leave the labor force. Changes in each of the policies discussed in this chapter could have a labor force impact. We will return to that point in the concluding section.

The continued expansion of the female labor force raises issues involving policies in every agency of the federal government. It affects the economic and social environment within which their activities are conducted and it affects their own employment policies. In the present study it was necessary to restrict our attention to a limited number of policy areas. A discussion of those areas should illustrate the importance of taking into account the anticipated changes in women's labor market role in planning federal programs. The areas to be discussed include federal activities that are pervasive in their effects (such as macroeconomic planning, the Social Security system, and the personal income tax) and/or are of special concern to the Department of Labor (such as employment and training programs, work schedules, and unemployment insurance).

The Future Growth of the Female Labor Force and the Need to Plan for It

By 1990, about 55 percent of the female population is projected to be in the labor force, compared with 48 percent in 1977. Together with population growth, this will result in 52 million women working or looking for work, over 12 million more than in 1977. Most of the net additions to the labor force will be in the central age group; most will be married; and the majority will have young children.

A summary of the projections for 1990, along with the comparable numbers for 1977, is provided in Table 14. Notice that even with the projected

TABLE 14

Summary of main projections of female labor in 1990

	Population (thousands)			Labor force (thousands)			Participation rate (percent)		
	Actual 1977 (March)	Projected 1990	Projected change	Actual 1977 (March)	Projected 1990	Projected change	Actual 1977 (March)	Projected 1990	Projected change
Total, 16 and over	82,209	94,690	12,481	39,359	51,890	12,531	47.9	54.8	6.9
16-24	18,106	15,535	-2,571	10,324	10,420	96	57.0	67.1	10.1
25-54	40,386	52,023	11,637	23,603	35,706	12,103	58.4	68.6	10.2
55 and over	23,717	27,132	3,415	5,432	5,764	332	22.9	21.2	-1.7
Total, 16-54	58,492	67,558	9,066	33,927	46,126	12,199	58.0	68.3	10.3
Never-married	14,756	13,757	-999	9,028	9,464	436	61.2	68.8	7.6
Married, spouse present	36,095	44,390	8,295	19,484	29,600	10,116	54.0	66.7	12.7
No children under 18	11,527	12,942	1,415	7,527	9,561	2,034	65.3	73.9	8.6
Children 6-17 only	13,277	17,859	4,582	7,519	12,520	5,001	56.6	70.1	13.5
Children under 6	11,291	13,589	2,298	4,438	7,519	3,081	39.3	55.3	16.0
Other ever-married	7,641	9,410	1,769	5,415	7,062	1,647	70.9	75.0	4.1
No children under 18	3,218	3,740	522	2,473	3,063	590	76.8	81.9	5.1
Children 6-17 only	2,905	3,882	977	2,108	2,865	757	72.6	73.8	1.2
Children under 6	1,518	1,788	270	834	1,134	300	54.9	63.4	8.5
Total 16-54	58,492	67,558	9,066	33,927	46,126	12,199	58.0	68.3	10.3

NOTE: All estimates and projections for age 16-54 groups are from Table 4. The projections are based on the assumptions that each age-marital-family status group's participation rate trend from 1964-1977 will continue to 1990 and that the marital and family mix within each age-group will be as it was in 1977. The 1977 data for age 55 and over are from CPS annual averages, and the 1990 projections are the BLS projections reported in Table 1.

substantial increases in the participation rates of women with young children, the presence of children is still expected to deter labor force participation, although not by as much as it does today. Among married women under age fifty-five, for example, it is projected that about 74 percent of the women with no minor children will be in the labor force; 70 percent of those with children between the ages of six and seventeen only will participate; and 55 percent of those with children under age six will be in the labor force. Similarly, women without husbands will still be more likely to be in the labor force than married women, even though the projected growth in the former's participation rates is much smaller.

In other words, these projections do not reflect a sharp break with recent history. Nonetheless, when added to the changes in labor force patterns that have occurred during the last few decades, they depict a dramatic departure from many people's picture of what American women are doing. If these projections are accurate, by the end of the next decade two-thirds of all married women under the age of fifty-five would be in the labor force, including more than half of the mothers of young children. Even though the number of married women in this age group is expected to increase from 36.1 million in 1977 to 44.4 million in 1990, the number staying home with children under age eighteen is not expected to grow. The stereotype of a wife staying at home to look after her children would fit only one-quarter of the 44.4 million women under the age of fifty-five who are expected to be married and living with their husbands in 1990.

Several patterns deserve discussion. First, all but 400,000 of the projected labor force increase is in the age group that is most likely to be able to compete successfully in the labor market, ages twenty-five through fifty-four. This pattern is mainly due to the aging of the postwar baby generation. Fifty-five percent of the female population age sixteen and over will be in this age group, compared with 49 percent in 1977. The absolute number of women in the age group sixteen to twenty-four will fall; even with a projected ten-point increase in their participation rate, the number of young women in the labor force will be virtually the same as in 1977.

Married women are expected to account for a larger proportion of both the female population and the female labor force than they did in 1977. The former will occur because of the change in the age distribution; the latter, for the same reason plus the projected continued growth in their participation rate.

Finally--and most importantly--a very large increase in the number of working mothers with children under age six is projected. An increase in the

labor force of 3.4 million mothers with young children is projected--i.e., a 65 percent increase over the 1977 level. An additional increase of 5.8 million working mothers with children between six and seventeen (and none under age six) is projected--i.e., a 60 percent increase. Increases of this magnitude, especially for the mothers of younger children, could have tremendous consequences for child care policy, work schedules, and other issues that affect a person's ability to juggle the demands of a job with the demands of a child.

Failure of public policymakers to plan for the continued growth in the female labor force will result in poor planning in government activities that affect us all. To plan for the expansion in the size of the female labor force requires, at a minimum, that the increase be anticipated. Official projections in the past have repeatedly underestimated the future course of women's labor force participation.

Projections of the long-term growth of the female labor force are subject to considerable error. No technique will ever be devised that would provide projections that never need revision. Therefore, it is important that these projections continue to be periodically reviewed and, when necessary, revised. The new projections should then be quickly distributed, and where they have been used as inputs to other projections (for example, occupational outlook projections), these too should be reviewed and revised.

One cost of not doing this is to mislead the public. For example, the 1978 edition of the Employment and Training Report of the President (U.S. Dept. of Labor) (Tables E-2, E-3, and E-7) contains the labor force projections from the 1976 BLS report without any warning that the projections are highly unlikely, given the increases in the female labor force that had already occurred. Even worse, three of the tables (E-4 through E-6) are based on the 1973 projections, which are even lower. A footnote explains that these projections antedate the others because new projections by race were not yet available. But nothing warns the reader that the projections also antedate reality. The female labor force size projected for 1980 in these tables is 37.1 million; the projection for that year in the other tables is 41.8 million; the actual size of the female labor force in the month the Employment and Training Report was issued (May 1978) was already 41.8 million.

The projections used here are higher than those made by BLS two years ago. Given the likely course of opportunities in the labor market, demographic patterns, the increasing acceptance of work outside the home as a respectable activity for wives and mothers, and the growth that has already occurred, our

projections appear more likely to occur. Indeed, if the gap between the wages of women and men begins to narrow, or if social or economic pressures for women to work become stronger, the projections might be too low. The new BLS projections are even higher. In any event, there is virtually no possibility that the participation of women will do anything but increase between now and 1990.

Macroeconomic Policy

Our projections have over 46 million women under age fifty-five in the labor force in the year 1990. Together with nearly 6 million women age fifty-five and over, and 67 million men projected by BLS to be in the labor force, 119 million people would be in the labor force in 1990--20 million more than were in the labor force in 1977. Sixty percent of the additional participants would be women.

The first question that concerns many people when faced with the prospect of millions more in the labor force is whether there will be enough jobs for the additional participants without depriving people already in the labor force of their jobs. In recent years, the unanticipated growth of the female labor force, in particular, often has been blamed for high national unemployment rates. For example, the Economic Report of the President in 1971, in explaining why unemployment rose by more than anticipated during the preceding year, stated that "explanations for the large rise in unemployment are found in the behavior of the labor supply and production costs. The civilian labor force increased by 1.9 million workers from the final quarter of 1969 to the corresponding 1970 quarter" (U.S. President, 1971, p. 37). The majority of the additions to the labor force were women.

The 1972 Economic Report discusses the possibility that the tradeoff between inflation and unemployment had worsened because of the increased proportion of women and youth in the labor force. A table (ibid., 1972, p. 115) showed that the national unemployment rate would have increased from 4.1 percent in 1956 to 4.5 percent in 1971 even with no changes in each age-sex group's unemployment rate. The high-unemployment groups (women and youth) constituted a much larger fraction of the total labor force in the latter year. Such reasoning has often been used as a basis for adjusting the "full employment" unemployment rate. The last Economic Report (ibid., 1977) of the Ford administration revised the benchmark unemployment rate for estimating potential GNP, and the first Economic Report of the Carter administration accepted the revision (ibid., 1978, pp. 83-84).

Does continued growth of the female labor force necessarily result in higher national unemployment rates or a worsened inflation-unemployment trade-off? The argument that it does, in its least sophisticated form, is that there is a fixed number of jobs available, and hence an increased supply of labor necessarily results in more unemployment. However, there is no reason to accept the premise that the number of jobs in the economy is predetermined or outside the influence of federal policy. Fiscal and monetary policies affect the rate of economic growth, which in turn affects the rate of employment expansion. These policies operate with a lag and therefore planners must forecast the condition of the economy during the period in which their activities will have their effects. One of the variables forecast is the growth in the productive capacity of the economy over a several-year period. The growth of the labor force is one of the components of capacity expansion. More job seekers present an opportunity to raise national output without adding to inflation.

If the expansion of the labor force is not anticipated, then macroeconomic policies may inadvertently be aimed at the wrong targets. It is difficult to set demand policy without knowing what the supply will be. There is ample evidence that in the past, the growth in labor supply--particularly that of adult women--has been much larger than had been planned. One problem is that past projections reflected the repeatedly thwarted expectation that female participation rate trends would begin to taper. Another problem is that the size of the female labor force is itself affected by job availability. Thus, during the recent recovery from the 1973-1975 recession, an exceptionally large increase in the labor force resulted. Better models of short-term labor force fluctuations are needed to reduce the planning errors. There will inevitably be times when the labor force will expand more rapidly than anticipated, but these should be the exceptions, not the rule.

Even if labor force growth were accurately projected, more women in the labor force could cause higher unemployment for other reasons. A larger fraction of the labor force being female will result in higher total unemployment if the female-male differential in unemployment rates is not narrowed. This is the basis for the kind of standardization analyses used in the recent Economic Reports. Since 1967, the adult female unemployment rate has been between 1.3 and 1.9 percentage points above that of adult males. It is not clear whether the gap will narrow over the next decade. This will depend in part on how successful future employment and training programs and equal employment opportunity activities are in breaking down barriers that perpetuate occupational crowding. This will be discussed further in the next section. In any

event, there is no reason to accept higher unemployment for women as an unchangeable fact of life. Active labor market policies can be planned to have, as one of their goals, the reduction of female unemployment (Vickery, Bergman, and Swartz, 1978; Smith, 1978b).

The preceding discussion suggested ways in which continued growth in the female labor force could make it more difficult to achieve a desired reduction in unemployment and, in this sense, could cause higher unemployment. Macroeconomic policies may need to be more stimulative than otherwise, and labor market programs may be needed to solve problems that would not be as difficult if women stayed home. It is not clear whether or not the combination of unemployment rates and inflation rates that could be achieved with macroeconomic policies alone will worsen.

Unlike the experience of the 1960s and early 1970s, the growth of the adult female labor force will not be combined with large increases in the youth labor force. Between 1964 and 1977, the number of young people between the ages of sixteen and twenty-four increased by 11 million, and their labor force increased by 10 million. Between 1977 and 1990, their population will decline by about 4 million, and their labor force will probably decline as well. The 20 million net additions to the labor force projected here for the 1977-1990 period are 4 million below the number who came in during the preceding thirteen years. Also, the women who will be in the labor force in 1990 will be better educated and will have more labor force experience than the women in recent years. To the extent that the increased participation results from women deciding not to interrupt their careers because of childrearing, increased labor force attachment will result, reducing one potential source of higher unemployment.

Nonetheless, higher unemployment could result from the continued movement of women into the labor force for an entirely different reason. Even if a given unemployment rate is no more difficult to achieve in 1990 than it is today, policymakers may not try as hard if a higher proportion of the labor force is female. As long as the achievement of a reduction in unemployment is not costless, a higher unemployment rate goal may be set. This will depend in part on whether macroeconomic and labor market policymakers view the unemployment of women as less costly than that of men and whether this affects their policies. The argument is made that unemployment imposes less of a hardship if there is another earner in the family or household. The increase in two-earner families that results from the added participation of wives increases the chances that an unemployed person (male or female) will have an employed

person in the family. In 1977, 54 percent of the unemployed had at least one person in the family who was working full time. This was the case for 80 percent of the unemployed wives, 37 percent of the unemployed husbands, but only 12 percent of the unemployed women who headed families (Green et al., 1978). The percentage of husbands with working wives will increase over the next decade, and the proportion of the unemployed who will be wives will increase as well.

An important issue, then, will be whether the continued growth of two-earner families should affect the nation's unemployment goal. The views of some people in the past have suggested that unemployment is considered a less serious problem if the unemployed person has another member of the family to rely on for support. Neither the Employment Act of 1946 nor the current version of the Full Employment and Balanced Growth bill make any such distinction. The Employment Act of 1946 states it to be:

> . . . the continuing policy and responsibility of the federal government to use all practicable means consistent with its needs and obligations . . . to coordinate and utilize all its plans, functions, and resources, for the purpose of creating and maintaining . . . conditions under which there will be afforded useful employment opportunities . . . for those able, willing and seeking work and to promote maximum employment, production, and purchasing power.

The proposed legislation would set numerical goals. These goals would not be changed simply because more of the labor force participants, or more of the unemployed are women, or because more families have multiple earners.

Employment and Training

Many people still hold the view that women's participation in paid labor market activities is incidental to their major life's work as wives and mothers. This view has already been made obsolete by the decisions made by many women to be in the labor force in circumstances that a generation ago would have kept them out. It will be an accurate description of an even smaller proportion of the female population over the next decade.

This judgment can affect people's attitudes about women as workers or potential workers. Young women who do not expect to be in the labor force very much are less likely to make education and training decisions that will prepare them for good jobs. Their parents, teachers, and counselors are less likely to provide good vocational guidance if they do not expect the young women to be in the labor force very long. Employers will hesitate to hire women for jobs that require a lengthy period of training if they do not expect them to stay. All of these decisions are affected by the individual parent's or teacher's or

employer's expectation of the future attachment of the particular woman to the labor force. That expectation, to the extent that it is formed on the basis of the past behavior of women, is likely to be low.

As long as women who do work outside the home are earning much less than men, they will continue to be viewed as "secondary" workers. This not only affects the position of women within the job market, but it also influences the decisions of women as to whether it is worthwhile to enter the labor force and whether it is worthwhile to remain. It also affects how they are viewed in society in general and by their families in particular. In our society, one's status is often defined in terms of the work one does. Within the home, if the wife's job pays less and has less opportunity for advancement than the husband's, it is clear which job will take precedence when a child needs to be taken to the doctor or when the husband has an opportunity for promotion by moving to another city. This in turn perpetuates the view that women's home responsibilities make them less valuable workers outside the home.

Women who are in the labor force today are earning wages far below those of men, have higher unemployment rates, are more likely to be involuntarily working part time and are concentrated within a narrow range of "women's jobs." This pattern may have been aggravated by the sharp increase in the size of the female labor force. To the extent that the labor market was already segregated by sex, more women coming into the labor force could have created or widened an imbalance between the supply of women available to work and the demand for labor in the occupations in which women are concentrated. The result would be to hold down wages and increase unemployment and other forms of underutilization (Bergmann, 1974).

With the knowledge that the size of the female labor force will continue to grow, steps should be taken to keep the relative position of women in the labor market from deteriorating and to attempt to improve their opportunities. Part of this should occur automatically. As more and more women enter and remain in the labor force, younger women will increasingly become aware of the need to plan for work oustide the home and will make more appropriate education and training choices. Employers, as they see that women's attachment to the labor force has strengthened, will increasingly find it in their self-interest to more fully utilize the skills of this growing proportion of the work force.

Public policies and programs can play an important role in this process. Employment and training programs can be used to equip women with the skills needed to compete in the labor market, especially in occupations, such as the

skilled construction crafts, which previously employed few, if any, women. Vigorous enforcement of equal employment opportunity laws can aid in assuring that the women who will be in the labor force are not denied opportunities available to the men.

The Department of Labor, under the Comprehensive Employment and Training Act (CETA), administers the major set of federally funded employment and training programs. In fiscal year 1977, over $12 billion was obligated for CETA activities. The two public service employment programs authorized under Titles II and VI were the largest components of CETA activities, with appropriations of over $8 billion. About $2 billion was appropriated under Title I to provide comprehensive employment and training services, including classroom and on-the-job training, work experience, counseling, and placement services. Additional employment and training programs authorized under other titles of CETA include special programs for youth and other groups, such as offenders, older workers, and migrant workers (U.S. Dept. of Labor, Employment and Training Report, 1978, Chapter 2).

CETA activities have expanded in recent years in response to high unemployment rates and they probably will not continue operating at this scale. But it is likely that these programs or ones like them will continue to be an important source of jobs and job preparation. Expenditures by the federal government for employment and training programs have increased in almost every year since they were begun in the early 1960s.

As the number of women seeking paid employment continues to increase, these programs could play an important part in helping women, particularly those lacking relevant experience and training, to make the transition from home or school to work. The extent to which this assistance will be available will depend, in part, on how two sets of issues are resolved.

The first concerns the criteria that are used to determine who is admitted into the employment and training programs. The second concerns the types of services that female enrollees are provided.

A noncontroversial principle governing admission into a government sponsored program is that the admission criteria be sex-neutral. The prime sponsors, who are largely responsible for the actual selections, should not be permitted to discriminate against women who seek to enter their programs. But in practice, this general principle may conflict with other goals of the program. For example, preference is given to veterans, very few of whom are women. Also, the definition of the target population of the program is critical. In general, admission standards that are set according to employment status (for

example, give preference to the unemployed) will result in more women than standards that are income-conditioned (for example, give preference to members of families with total income below a specified level). Women who head families and want to work will usually meet either standard, since their unemployment rate is relatively high and their income low. But women in intact marriages will, on average, be less likely to meet admission standards based on family income.

In the labor force projections reported here, it was estimated that most of the growth in the female labor force will be among married women. Thus, the issue of employment-conditioned versus income-conditioned eligibility and ranking criteria is likely to become even more important over the next decade. One's position on this issue depends on whether employment and training programs are viewed as activities primarily designed to improve an individual's future ability to compete in the labor market or as a means of transferring income.

In practice, both are legitimate goals of employment and training programs, but they may conflict since program slots are limited. Many women who seek paid employment have serious problems, such as lack of skills, that could be solved through the kinds of services offered under CETA. The productive capacity of the nation could be expanded by helping these women, whether or not their families are poor. The original goal of CETA's predecessor, the Manpower Development and Training Act of 1962, was to provide retraining for experienced workers whose skills had been made obsolete by structural change. During the mid-1960s the program gradually changed into one which was primarily oriented toward serving the needs of the disadvantaged. The program became part of the War on Poverty. Since that time, the major emphasis of employment and training programs has been to help the most needy first, with family income being one indicator of need.

The use of employment and training programs for redistributing income to families seems to be the basis for one-job-per-family kinds of eligibility criteria. For example, in the priorities used for allocating Work Incentive Program (WIN) placement services, unemployed fathers are placed first in the queue. The Administration's welfare reform proposal, the Program for Better Jobs and Income, explicitly links public service employment to income maintenance and does so in a way that allocates one subsidized job or training slot per family. In families having husband and wife, the opportunity would go to the "principal earner," who is defined as the adult with the largest earned income or greatest number of hours worked during the previous year. In most

cases, because of the higher participation of husbands and because of their higher wages, the eligibility criterion would result in the husband getting the opportunity. One argument against this proposal is that wives would be denied the opportunity to participate in a program which would provide them with work experience that could increase their future earning power. It has been suggested that at least families should be able to choose whether the husband or wife takes the public service employment position, rather than have the government decide for them (Gordon, 1978).

The second issue is the type of services that women in employment and training programs will receive. Past program data suggest that women have been placed in lower-cost programs and in activities that often perpetuate the patterns of occupational segregation found in the national labor market (Sexton, 1977; Underwood, 1978). For example, in fiscal 1977, when women accounted for 46.8 percent of national unemployment, 48.5 percent of the CETA Title I participants were female, but only 40.0 percent of the Title II, and 35.9 percent of the Title VI participants (the two public service employment titles) were women (U.S. Dept. of Labor, Employment and Training Report, 1978). Public service employment participant costs are about double those of the kinds of services received under Title I (U.S. Office of Management and Budget, 1978, Special Analysis K).

The occupations and wages of graduates of the WIN program provide a vivid illustration of the perpetuation of the female/male differences that exist in the labor market. The entry wages for female WIN job entrants in fiscal 1977 were considerably lower than those of male WIN entrants in the same year. Thirty-four percent of the men, but only 7 percent of the women found jobs that paid at least four dollars per hour. On the other hand, 72 percent of the women, but only 35 percent of the men, entered jobs that paid less than three dollars an hour. The jobs held by men were across a broad spectrum of occupations. More than half of the women's jobs were in clerical and service occupations (U.S. Dept. of Labor, Employment and Training Report, 1978).

Without additional information about the characteristics of the women and men who were available for employment and training programs, their preprogram employment experiences, and the actual services provided, the above comparisons can only serve to suggest differential treatment. They do not, by themselves, indicate whether the net benefits to women have been higher or lower, nor do they indicate how program funds could be more effectively allocated.

As women's share of the total labor force increases over the next decade, it should be anticipated that their share of unemployment will increase with

it. Programs that are targeted on the unemployed, then, will have more women in their pool of eligibles. Whether they actually take in a larger proportion of women will depend on the selection criteria. In particular, it will depend on the extent to which criteria other than employment status, such as family income or position within the family, are also used.

The services that the women receive should be oriented toward helping them with their particular labor market problems. Many will merely require that they be treated no differently than the men in the program. They should be prepared for a similar range of jobs with a similar range of wages. Since over the next decade there will still exist large differences between the sexes in their occupational distribution and wages, sex-neutral treatment in these programs should help to narrow the gaps.

In addition, some women will have special needs that will require different program services. For example, homemakers returning to the labor force may require refresher courses. Mothers may require child care or alternative work schedules. Women who want to enter predominantly male occupations may require supportive services such as buddy systems. The Department already has supported projects in these areas and the need for them will continue.

In sum, women's success in the labor market over the next decade can be improved through employment and training programs. The benefits to women from these programs will be lessened if program eligibility criteria stress family income, rather than individual employment status; if preference is given to husbands; or if the services women receive do not assist them to leave predominantly female and low-wage occupations.

Work Schedules

Contrary to a popular stereotype, three-quarters of the women in the labor force are seeking full-time jobs. However, it is true that women are more likely than men to be in the part-time labor force: that is, either voluntarily working or looking for work with under thirty-five-hour-per-week schedules. In 1977, 24 percent of female participants and 8 percent of male participants were employed on voluntary part-time schedules or looking for part-time work. Within the central age group (twenty-five to fifty-four), only 20 percent of the women and 2 percent of the men were part-time participants (Green et al., 1978). Mothers of young children are especially likely to seek part-time jobs. For example, in March 1976, 35 percent of employed wives with children under age six, but only 23 percent of employed wives with no children under eighteen, worked part time (Johnson and Hayghe, 1977). The

projections call for a sharp increase in the number of mothers who will be trying to juggle child rearing with work outside the home. Part-time employment provides an obvious solution.

Another reason to expect the demand for part-time jobs to increase is that the increase in two-earner couples will mean that there probably will be an increase in the number of labor force participants who will view scarcity of time as a more serious problem than scarcity of money. Time poverty is already replacing the traditional kind of poverty as a concern among families with husband and wife in which both workers have high-paying jobs (Vickery, in Smith, ed., 1979). Women who head their own families will still face both kinds of poverty.

Full-time jobs with flexible schedules provide another means of helping individuals to cope with competing demands on their time. Although statistics are hard to come by in this area, it appears that there has been a significant increase in the number of workers who have flexitime, compressed time, or other nontraditional scheduling arrangements in recent years (Hedges, 1977). One impetus has been the desire of parents to rearrange their work schedules to better meet the demands of child rearing.

Over the next decade, as the demand for alternative work schedules increases, the federal government is likely to come under more pressure to take actions that will expand part-time and flexible-time job opportunities. What role could the government play? Should alternative work schedules be encouraged as a means of coping with the problems that will confront women, particularly wives and mothers, who want to be in the labor force?

Some employers have already increased part-time job opportunities and instituted various forms of flexitime, but others are reluctant. Part-time schedules may increase average hourly costs for a number of reasons. Hiring and training costs for new personnel are fixed costs that must be incurred whether the employee works twenty hours or forty hours per week. Productivity may be lower if there are daily start-up activities. Flexible schedules that permit employees to set their own hours, subject to certain constraints, may also increase costs or reduce productivity if the work involves activities that require coordination between employees. On the other hand, there are potential benefits to employers of both part-time and flexible work schedules. Part-time scheduling has long been used as a way of solving peak demand problems, such as in restaurants and retail stores. Hiring and training costs may actually be lower when alternative work schedules are used if they result in fewer employees quitting. Productivity may increase as employees are able to

arrange their nonwork activities outside paid hours and as morale improves. In sum, the reluctance of some employers to increase the number of jobs with nontraditional work schedules may be justified, but it may also be based on lack of information.

The federal government could take several steps that would result in more jobs with alternative work schedules being made available over the next decade. The benefits and costs of each have yet to be carefully evaluated (Sawhill and Smith, 1976). First, Congress would enact legislation that would lower the costs to employers of using alternative schedules. One bill that was introduced in 1977 (H.R. 2403, the Private Sector Part-Time Employment bill) would do so by providing a tax credit for the expenses incurred in increasing the number of permanent part-time employees on a firm's payroll. One danger of such legislation is that it might inadvertently result in a reduction of job opportunities for people who prefer full-time schedules. Another danger is that it would provide a windfall gain to firms to do what they would have done anyway.

A second way that alternative schedules would be encouraged would be to amend legislation that inhibits firms from changing their schedules. For example, Social Security and unemployment insurance taxes are levied on employers based on each employee's wages up to a maximum. These ceilings discourage splitting a full-time job into two part-time jobs if the result is to increase total payroll taxes. Also, legislation that requires overtime premiums for those who work more than eight hours per day or forty hours per week inhibit the use of flexible schedules in which the worker would sometimes exceed these limits in return for a shorter day or week at other times.

A third way would be for the federal government, itself, to institute alternative work schedules. This would not only directly help federal employees who wish to work alternative schedules, but would also serve as an example for other employers. Some agencies are already making changes. In May 1978 the House passed H.R. 7814, the Federal Employees Flexible and Compressed Work Schedules Act of 1978, which authorizes agencies to experiment with various forms of alternative schedules. This legislation would authorize a three-year experiment, during which period certain premium pay rules would be suspended.

Finally, to the extent that employers are reluctant to try alternative schedules because their current schedules have always worked well and they see little to gain, the federal government could serve a useful function by promoting research, demonstrations, experiments, and the exchange of information

on the benefits, costs, and techniques. The Employment and Training Administration has already sponsored several activities of this sort (e.g., Nollen, 1976; Owen, 1977).

While it is likely that some women would benefit from the availability of new part-time or flexitime jobs that would result from these measures, this does not necessarily mean that women, as a group, would really gain. There is a fear that the expansion of jobs with alternative work schedules would serve to reinforce the patterns of occupational segregation that already exist. Data on part-time employment clearly demonstrates that women on part-time schedules are in even more stereotypically female jobs than women on full-time schedules. For example, one-third of the women usually on part-time schedules, as reported in the May 1976 Current Population Survey, were employed in food service, retail sales, or private household service occupations. The median usual wages of the women on part-time schedules was $2.71 per hour, compared with $3.59 per hour for women usually on full-time schedules. About half of the difference was associated with the fact that women on part-time schedules were in occupations that pay less than the occupations of women on full-time schedules; the other half was associated with being paid less within the same occupation (Smith, 1978a).

An important issue that will need to be resolved is how alternative work schedules can be made available to more women without perpetuating occupational segregation and wage differentials. This will require encouraging employers to open up additional kinds of jobs on a part-time or flexitime basis, rather than merely converting jobs that were already deemed "women's work."

Federal Social Insurance and Income Tax Systems

The remaining policy issues to be considered in this chapter involve the implications of more women in the labor force for various provisions of Social Security, the personal income tax system, and unemployment insurance. They are considered together because they all involve questions about the responsiveness of government institutions to the changes in women's roles, particularly as more wives work outside the home. The income tax and Social Security issues and methods of resolving them will be dealt with more extensively by Nancy M. Gordon in two chapters of a forthcoming book on the consequences of female labor force growth (Smith, ed., 1979).

The Social Security system was established in 1935 at a time when the stereotype of the American family, consisting of a husband who works most of

his adult years and a wife who stays home to rear children, was closer to reality than it is today or will be in 1990. An important feature of the retirement part of the system is that the monthly benefit levels are related to the indexed earnings history that the individual worker developed and on which the worker and his or her employers paid payroll taxes. Dependents' benefits are included in the system: aged spouses of recipients are entitled to whichever is higher--the benefits they earned as workers in their own right or 50 percent of their spouse's benefits.

In cases in which the wife never worked in employment covered by the Social Security system, the result is to provide "free" benefits. In cases in which the wife did work but, because of either lower earnings or shorter length of employment, has a benefit in her own right that is less than that which she could claim as a dependent, her Social Security contributions have no impact on her retirement income. When her earnings record is sufficient for her to claim benefits in her own right, then, the return from her own contributions (net of what she would have received anyway as a dependent) is usually small.

One result of this system is to favor families in which only one spouse contributes to the Social Security system, at the expense of families in which both contribute and at the expense of individuals who never marry. They are favored in the sense that their benefits relative to the Social Security are higher. A related problem arises if a divorce occurs. Until recently, a dependent spouse's claim was not vested unless the marriage lasted at least twenty years. Beginning in 1979, vesting will occur in ten years. However, benefits for divorced homemakers will remain low since they equal 50 percent of the ex-husband's benefit while he is alive and equal his benefit only after his death. As the proportion of families in which both spouses participate in the labor force increases, there will be more pressure to change the system.

The personal income tax system also puts two-earner couples at a disadvantage by imposing a "marriage penalty" on many of them. Consider, for example, the situation facing two college graduates who are hired by the federal government and are contemplating marriage versus living together without marrying. If each is hired at the GS-5 level, each will earn about $10,000 per year. Assuming no other income and that they do not itemize, as single tax-filers each would pay $1,216 in federal income taxes, a total of $2,432 for the two of them. If they married and filed a joint return, they would pay $2,899. Thus, the penalty that they would pay for marrying would be $467. If they both get promoted, the tax loss for being married would increase. As a

married couple with $36,000 in earnings (two GS-11s), they would owe $8,197; if they did not itemize and filed as two single persons living together, they would owe $6,696. They would be paying an extra $1,500 in taxes by marrying. Assuming that they did itemize and had an average amount of deductions (about 16 percent of adjusted gross income), the penalty would still be about $900. One cannot avoid the marriage penalty by filing separate returns. Using the tax tables applicable to individuals who are married, but filing separately, increases the taxes owed by the couples in our examples by another $100.

This extra tax burden imposed on two-earner couples is a major source of pressure for changes in the system. The size of the marriage penalty depends both on the amount of income being taxed and on the proportion of income earned by each partner. The higher the income and the more evenly divided the earnings, the larger will be the penalty. Hence, as an increasing proportion of wives work outside the home, more couples will face this problem and the stakes may increase. Even more couples will be affected if the gap between the wages of wives and husbands narrows. The same system that imposes a penalty on many two-earner couples provides a bonus to one-earner couples, since the individual's earnings are taxed at a lower rate than if he or she had to use the tax schedule for single persons. The latter group will be a smaller percentage of the population in 1990.

These issues within the tax and Social Security systems arise, in part, because provisions have been put in both systems that treat people as members of family units, rather than as individuals. If the personal income tax system did not allow couples to file joint returns, the marriage penalty problem would not arise. If the Social Security system based retirement benefits strictly on the worker's earnings history, with no dependents' benefits, one source of differential treatment would be removed. However, in both cases, there are important societal values that led to these provisions. For example, it was decided that extra assistance should be provided to retired couples who would otherwise need to support themselves only on the Social Security and other sources of income and saving that were derived from the one earner's employment. The basic issue is whether these institutions need to be modified as life-styles and women's roles continue to change.

The unemployment insurance system is a quite different case. From its establishment in the 1930s under the Social Security Act, a fundamental principle has been that unemployment insurance should provide protection to workers who, through no fault of their own, become unemployed. This protection is a weekly benefit amount which is linked to the wages that the unemployed

worker received in a recent period. Marital status and other sources of income are irrelevant to eligibility and largely irrelevant to the benefit amounts.

The major exception is that a number of states provide a dependents' allowance. As of January 1978, twelve states provided dependents' allowances, covering dependent children in all of these states and nonworking spouses in eight (U.S. Dept. of Labor, Unemployment Insurance Service, Comparison of State Unemployment Insurance Laws, 1978). The dependents' allowances are usually quite small in relation to total benefits. For example, in 1975, the average weekly benefits received by unemployment insurance beneficiaries who received dependents' allowances were only 14.4 percent above what they would have otherwise received (ibid., Summary Tables of Unemployment Insurance Program Statistics, 1975-76, 1978).

During its forty-year history, a number of issues have arisen concerning differential treatment between females and males. These have been reviewed elsewhere (Dahm, 1973; Fineshriber, 1978). These issues include denial of benefits to pregnant workers; disqualification of workers, usually female, who leave their jobs for family-related reasons; greater difficulty in getting dependents' allowances on the basis of the wife's unemployment than of the husband's unemployment; and denial of benefits to persons seeking part-time employment. Changes in legislation and court ruling have reduced, but not eliminated, differential treatment.

A critical issue that has recently received much attention is whether unemployment insurance should continue to be paid on the basis of an individual's employment status and history, without regard to income. Many of the people who are unemployed, including many of the unemployment insurance recipients, have family incomes well above poverty levels. This often is due to the presence of more than one earner in the family. The continued growth in the participation rate of wives projected in this report should increase the fraction of the unemployed who have nonpoverty family income levels over the next decade and thereby add to the pressure to introduce a means test. To do so would significantly alter the nature of the program, moving it away from its original basis as an insurance system. It is beyond the scope of this report to try to assess or even enumerate the arguments for and against such a change. But it should be pointed out that one characteristic of the current system is that, with the exception of the dependents' allowances, workers are able to receive benefits without regard to their marital or family status. The employment status of one spouse does not jeopardize the eligibility for benefits of

the other if one becomes unemployed. These features could be lost if unemployment insurance eligibility or benefit amounts were subject to an income test.

A related issue is whether unemployment insurance benefits should be taxed. Currently, the federal income tax system does not count unemployment insurance as taxable income. Thus, the degree to which unemployment insurance replaces an unemployed person's lost earnings depends on that person's tax bracket. If the person is married, the bracket will depend on the earnings of both spouses, because of the joint taxation system described above. One effect of the current system is that an unemployed person whose spouse has high earnings loses much less from being unemployed than does someone whose spouse does not work or has low earnings. Since wives in most two-earner families earn less than their husbands and are less likely to be at a wage level in which the maximum benefit ceilings are relevant, the net loss from being unemployed will sometimes be small.

One reason why taxation of benefits is advocated is that it would make the system more progressive (Feldstein, 1975). In this sense, taxation substitutes for proposals to subject the receipt of benefits to an income test. Taxation of benefits would not result in the denial of benefits because of a spouse's income, as could an income test. However, a recent Administration proposal to tax benefits appears to do so in a way that could result in unequal treatment because of marital status. Included in a tax reform proposal was a provision that would count unemployment insurance as taxable income only for single taxpayers with annual income, including unemployment compensation, of more than $20,000 and for married couples filing joint returns with income of more than $25,000 (U.S. Office of Management and Budget, 1978, p. 197). This would introduce another marriage penalty into the existing tax system. A single person whose income including unemployment compensation would be less than $20,000 would not pay taxes on benefits; but if he or she married someone with any income, the spouse's income could put them over the limit.

Concluding Comments

In this chapter a number of issues have been raised that result from the expectation that the female labor force will continue to grow throughout the next decade. The movement of women, especially married women and mothers of young children, into the labor force has not been a smooth transition. Over the next decade it could get easier, but much will depend on actions taken by the federal government. If macroeconomic policy supports sufficient expansion of job opportunities to keep pace with labor force growth, unemployment need

not increase. Employment and training programs and vigorous enforcement of equal opportunity laws could help to break down the pattern of occupational segregation and increase the relative wages of women. The encouragement of alternative work schedules could help families cope with the competing demands on their time between market and nonmarket work. Government programs that operate under obsolete assumptions about women's role in society and in the labor market could be brought up to date. None of these activities is costless. In some cases, conflicting values or goals are involved. More stimulative macroeconomic policy may generate more inflation. Revisions in tax and Social Security laws that benefit two-earner couples could cost one-earner couples. In adapting institutions to the changing role of women, it is important that the well-being of families in which the wife continues to stay home not be jeopardized.

The way such issues are resolved will itself affect the rate at which the female labor force expands. The system is interdependent. Women choose to enter and remain in the labor force on the basis of their perceptions of the benefits of doing so. The estimates of the impact of wage growth on the labor force participation decision, reported in Chapter 3, suggest the responsiveness of many women to changes in the reward structure. Policies that improve the position of women in the labor market, help them cope with competing demands on their time, or reduce the taxes on their earnings will all result in more women opting to be in the labor force.

The federal government does not have, nor should it have, a general policy of encouraging or discouraging women who want to participate in the labor force. But it does conduct many activities which influence their decisions. For the continually increasing number of women who decide to participate, the government should help to provide an environment within which their efforts will be best used and rewarded. The principle stated sixteen years ago in the Economic Report of the President (1962, p. 42) is still a good one to follow:

> A free society abhors forced idleness as well as forced labor. This principle does not apply a means test for job-seekers. It acknowledges that mature individuals should be able to choose for themselves how they spend their time, as between gainful employment, housework, leisure and education.

CHAPTER 7. THE IMPLICATIONS FOR CHILD CARE

The growing number of women, especially mothers, joining the labor force has substantial ramifications for their families and for the rest of society. One of the most important is the increasing reliance of parents on alternative caretakers, i.e., on "day care," for their preschool children. There are few parents who do not rely on babysitters, nursery schools, and kindergartens for the care and stimulation of their children during some of their waking hours during the first six years of life. In 1976, almost half of all children age three to five were enrolled in nursery school or kindergarten (80 percent of the five-year-olds; 31 percent of the three- to four-year-olds), compared with 30 percent in 1967 (65 percent and 14 percent, respectively) (U.S. Bureau of the Census, No. 318, 1978a). The proportion of infants and toddlers in day care is not known. The increasing labor force participation of mothers, however, means that a substantial proportion of preschool children are in such care for twenty or more hours a week.

In this chapter the magnitude of the need for child care for the children of working mothers will first be discussed. Not only the number of children needing care, but the types of care, caretakers, and facilities different types of parents use are important issues. The "fit" between current supply and demand is then discussed, as well as the projected "fit," given current trends. Finally, factors that might alter the supply of day care or the needs of working mothers, including policies at the federal level, are considered.

Preschool Children of Working Mothers: 1970 to 1990

Although in the past, mothers with preschool children typically remained at home, in recent years labor force participation rates have been rising faster among mothers of young children than among any other group of women (from 20 percent in 1965 to 41 percent in 1977). Since 1965 the number of preschool children with working mothers has increased 70 percent in spite of

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The author of this chapter is Sandra L. Hofferth, Research Associate, The Urban Institute. This material, with a few minor changes, was presented in testimony before the Select Committee on Population, U.S. House of Representatives, May 25, 1978.

declining fertility. And even though the fertility of individual women has been declining, the number of preschool children with working mothers is likely to continue to increase up to the year 1990. There are two reasons for this continued increase. First, in the 1980s the baby boom cohort will be in their peak childbearing years. If these young women behave in a predictable fashion, and opinions of reputable demographers vary on this issue, a 36 percent increase in the number of preschool children is expected (U.S. Bureau of the Census, No. 601, 1975c). Since the labor force participation rates of their mothers are expected to continue to increase at the same time (see Chapter 2), the number of children of working mothers will also increase, barring unforeseen events. On the basis of projections presented in Chapter 2, a 63 percent increase between 1977 and 1990 in the number of children of working mothers is predicted. In 1977 there were an estimated 17.1 million preschool children in the United States, of whom 6.4 million (37 percent) had working mothers. By 1990 there will be 23.3 million preschool children, 10.4 million (about 44 percent) with working mothers (Table 15).

Day Care in the 1970s

Although the range of types of alternative care is enormous, in general parents rely on in-home care and care by relatives. In 1965, nearly two-thirds of all preschool children of working mothers were cared for by a relative (Table 16). Of the other one-third, 15 percent were cared for in the child's home by a babysitter or housekeeper; 16 percent were cared for in the home of a sitter or day-care-home operator. Only 5.5 percent were cared for in a group care center. The age of the child is a factor in choice of care. Slightly fewer of the children under three (3.9 percent) and slightly more of the three- to five-year-olds (6.9 percent) were cared for in group care centers (Low and Spindler, 1968).

More recent data on the three- to five-year-olds show that things have not changed much over the decade.[11] If anything, preference for in-home care by relatives has increased. In 1975, three-quarters of the three- to five-year-olds with mothers in the labor force were cared for by a relative,

11. Although a number of other surveys has been conducted between 1965 and 1975 (see, for example, Westat, 1971; Unco, 1975; Shortlidge and Brito, 1977; Hall and Weiner, 1977; Duncan and Hill, 1975, 1977), none distributes type of care by children; rather, each focuses on families or parents. Therefore, none is directly comparable.

TABLE 15

Estimates and projections of children under 6 with mothers in the labor force, 1970-1990 (in thousands)

	1970	1975	1977	1990
Total children under 6	19,606	18,134	17,117	23,331
Children under 6 with mothers in labor force	5,590	6,512	6,431	10,453
Percent of children under 6 with mothers in the labor force	28.5%	35.9%	37.6%	44.8%

NOTES: Sources of the estimates of the total number of children under 6 and the number of children under 6 with working mothers from 1970 to 1977 are the Current Population Surveys, taken by the U.S. Bureau of the Census in March of each year. These are reported in the following publications:

1970, 1975: A. S. Grossman, "Almost half of all children have mothers in the labor force," Monthly Labor Review 100 (June): A1-44, 1977.

1977: A. S. Grossman, "Children of Working Mothers, March 1977," Monthly Labor Review 101 (January): 30-33, 1978.

Projections of the total number of children under 6 are taken from the following publication:

U.S. Bureau of the Census, "Projections of the Population of the United States: 1977 to 2050," Current Population Reports, Series P-25, No. 704, July 1977.

The projected number of children under age 6 with mothers in the labor force in 1990 is based on the projections of the number of mothers in the labor force reported in Table 14 and the assumption that the average number of children under 6 among working mothers with any children under 6 will not change. In 1977, this was approximately 1.2 for mothers with husband present and 1.1 for other mothers.

TABLE 16

Day care arrangements: number of preschool (<6) children with mothers in the labor force by type of arrangement and year, past and projected (in thousands)

Type of arrangement	(Proportion in 1965)[a]	1965	1970	1975	1977	1990
Total < 6 with mothers in the labor force		3,794	5,590	6,512	6,431	10,453
Mother, father, older sibling	(.32)	1,227	1,789	2,084	2,058	3,345
Mother/father	(.30)	1,146	1,677	1,954	1,929	3,136
Older sibling	(.02)	81	112	130	129	209
Other relative	(.30)	1,146	1,677	1,954	1,929	3,136
Child's home	(.15)	582	838	977	964	1,568
Other's home	(.15)	564	838	977	964	1,568
Nonrelative	(.31)	1,180	1,733	2,019	1,994	3,240
Child's home	(.15)	580	839	977	964	1,568
Other's home	(.16)	600	894	1,042	1,030	1,672
Day care center	(.055)	212	307	358	354	575
Cares for self	(.005)	18	28	32	32	52
Other	(.01)	38	56	64	64	105

NOTE: Projections from Table 15.

a. Low and Spindler, 1968: Tables A-2 and A-4; mother worked 27 weeks or more, full or part time, in 1964.

20 percent by a nonrelative (U.S. Bureau of the Census, No. 298, 1976a).[12] Only 3.8 percent were cared for in day care centers.

Fewer than 10 percent of those households with a young child under 6 who used day care did not pay for it at all. The dollar cost of day care to parents, according to information available from several studies, is surprisingly low--$.30 to .70 per child per hour (Low and Spindler, 1968; Hall and Weiner, 1977; Unco, 1975; Westat, 1971). However, payments are not necessarily in cash. Thirty-six percent of those who paid reported that they paid in cash, another 36 percent paid in kind, and 25 percent reported that they paid both in cash and in kind (Unco, 1975).[13]

Type of Family and Choice of Day Care Arrangement

Although not much is known about the actual process of choosing day care, researchers are gradually learning what factors parents consider most important and what types of parents choose each of the different kinds of care for their children.

Several studies have confirmed that there is substantial agreement among parents in the ordering of criteria used to select day care: (1) the suitability of the provider, (2) the convenience of the hours, (3) the location of the care, (4) the cost of the care, and (5) the type of program (Low and Spindler, 1968; Unco, 1975). The age of the child is most important in evaluating the suitability of the provider. Parents are much more likely to consider day care centers for their three- to five-year-old children than for infants and toddlers. This is partially because such care is less available for the under-three group; however, parents believe that care in their own home or that of a provider is better suited to the younger child. Parents of school-aged children are also unlikely to use center care, since presumably the children are in school most of the day. Preferences for daytime care do not seem to differ greatly among parents with children of similar ages. What differs most is the availability of different kinds of care. Different types of families have different options.

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12. Fifty-six percent are cared for by a parent, 6 percent by another relative in the child's home, 12 percent by another relative in the home of the caretaker. Three percent are cared for by a nonrelative in the child's home.

13. "In kind" payment includes services or favors (Unco, 1975). It may, therefore, include cooperative arrangements.

Income is one determinant of the availability of care. Although higher-income families and families in which the wife makes a good wage are likely to spend more money for day care, income does not directly predict type of care. Children of both low- and high-income parents are more likely to be in day care centers than children of middle-income parents. This is probably a result of the subsidization of care through social services agencies. As a result, low-income children are more likely to be in public and private nonprofit day care centers; upper-income children are more likely to be in private for-profit centers or nursery schools. However, low-income families are just as likely to rely on nonpaid help from relatives and friends as to use centers, and high-income families are as likely to hire babysitters and housekeepers to care for their children at home while they are working as to use centers. Similarly, the level of education of the mother has been found to affect expenditures on care, but not type of care chosen (Dickinson, 1975; Lave and Angrist, 1975; Unco, 1975).

Different types of care are differentially available, depending on a family's geographical residence. According to our calculations, there is wide variation among states and between urban and rural areas in the ratio of centers to number of preschool children. There is evidence that the availability of centers does have an effect on choice of care: parents are more likely to report reliance on centers in areas of greater supply (e.g., urban areas) (Duncan and Hill, 1975; 1977).

However, family structure is the single most important factor affecting type of day care chosen by working mothers. Children of single parents are twice as likely to be in day care centers as children with two parents (U.S. Bureau of the Census, No. 298, 1976a; Low and Spindler, 1968; Unco, 1975; Duncan and Hill, 1975; Shortlidge and Brito, 1977). The most important reason may be that single-parent families are more likely to be poor and therefore eligible to receive subsidies for child care (Ross and Sawhill, 1975). However, other explanations are possible. Besides who heads it, the composition of the family is important. Does a nonworking adult live in the household? Or an adolescent child? Families in which there is a grandparent, a disabled or unemployed adult, or a teenage child as well as a preschool child, are more likely to rely on in-home care by a relative than are families with no such person. Single parents may be less likely to live in large, extended families or to have teenage children and may therefore find it both more acceptable and more necessary to place their child in centers.

Given the strength of values strongly supporting the family's prerogative to care for its children without interference, a two-parent family may find it more acceptable to use a sitter or relative than to relinquish care of the child to professional caretakers in a center.

Small families are more likely than large families to use day care centers (Duncan and Hill, 1975; Shortlidge and Brito, 1977). The expense of center care may make it prohibitive for large families; in-home babysitting has been estimated to be equivalent in cost to out-of-home care if there are three or more children.

Finally, whether relatives and friends live nearby and can be counted on to help with child care are important considerations in choice of care. Families that have recently moved have been found to be more likely to rely on center care than geographically stable families (Duncan and Hill, 1977). Small families and those with professional heads and wives are more likely to be geographically mobile, to be living far from relatives and friends, and therefore, to use centers. Such families are also more likely to be found in urban areas.

Thus, after considering the effects of family structure and composition, including sex of head, number and ages of children, and presence of other adults, one should not be surprised that race adds no predictive power to day care choice (Kurz et al., 1975; Duncan and Hill, 1977). Thus if black children appear to use centers more than white children, it is because black children are more likely to be living with only one parent and to be poor than are white children.

Of course, day care choice is also strongly dependent on the mother's work schedule, whether she works part or full time. Mothers working part time are more likely to report that they split child care with their spouses or that they care for the child while at work, and they report more reliance on informal types of care (Low and Spindler, 1968; U.S. Bureau of the Census, No. 298, 1976a). Full-time workers, on the other hand, depend more on formal care, whether in family day care homes or in day care centers. Their young children are less likely to be reported as caring for themselves or as being in the care of older siblings (Low and Spindler, 1968; U.S. Bureau of the Census, No. 298, 1976a). Since employed female household heads are more likely to be working full time than employed wives, this further emphasizes the importance of family structure as the primary determinant of day care choice (U.S. Dept. of Labor, Bureau of Labor Statistics, 1977).

How Adequate Is Day Care in the 1970s?

Some 32,000 preschoolers were estimated to be caring for themselves in 1975. Although this is an alarming number, it represents fewer than half of 1 percent of all children of working parents. The fact that nearly all parents can locate alternate care has led some people to conclude that the supply of day care services is adequate, despite the rapid influx of mothers into the labor force. Yet even if parents are able to arrange some kind of care, this does not mean that they are satisfied with the care or that the quality is adequate. Parental dissatisfaction, poor care, crowded facilities, and inflated prices could all reflect an inadequate supply.

Parental Satisfaction. In general, parents seem to be satisfied. In one recent study, fewer than 10 percent of all parents surveyed reported themselves to be either less than completely satisfied or to be dissatisfied with their current day care arrangements (Unco, 1975). On the other hand, the same study reported that about one-quarter of parents would like to change to another form of care. Almost half of these desired to switch to center or nursery school care. Since the age of the children is not reported, it may be that such results reflect the changing ages of children rather than widespread disaffection with in-home care. On the other hand they might indicate that parents are satisfied with the care they are using because they have no alternatives. Parental satisfaction may not reflect their true difficulties in obtaining care for their children.

Quality. Parents are concerned about the quality of care their children receive. Of those changing from one type of care to another, the largest number of parents in one study reported that the provider was not suitable, for reasons they defined as: not liking the provider or facilities, not being able to find a reliable provider, program going out of existence, or provider no longer available (ibid.) Yet, in selecting another form of care, child-oriented factors such as the warmth of the care, the supervision, and the quality of the staff as well as whether the child likes the type of care were more important. The educational component itself was of minimal importance to parents. In the only major effort to evaluate the quality of care in centers and day care homes, whether or not an educational program was offered was one of the criteria indicating the quality of the home or center (Keyserling, 1972). Since many centers do not profess to offer an educational program, and parents do not necessarily want such a program (Handler, 1973), the investigator's definition of quality may not be appropriate.

Although the researchers considered the quality of care found in this study to be shockingly low, the question of the quality of care remains to be resolved. Further investigators need to separate out the various components of care quality.

Supply of Facilities and Providers. In 1975, there were approximately 18,300 licensed day care centers in the United States, with an enrollment of 900,000 preschool children (Table 17). There were approximately 95,000 licensed and approved family day care homes, with an enrollment of some 150,000 preschool children (U.S. Department of Health, Education, and Welfare, 1976). Assuming that all day care centers and about 10 percent of day care homes are licensed or approved, we estimate that in 1975 there was a total of 18,300 day care centers and some 950,000 licensed and unlicensed day care homes in the United States.[14] Together these centers and homes had an enrollment of about 2.4 million preschool children. Different estimates based on parental reports (Table 18) indicate that a total of 2.3 million children were cared for outside the child's home: 1.3 million children were in licensed or unlicensed day care homes and centers and 1.0 million were cared for in the home of a relative. The rest of the 4.3 million preschoolers who are not cared for by their parents (2.0 million) we estimated were cared for in the child's home by a relative or babysitter.

Very little is known about day care providers, especially those who operate in their own homes and those who are unlicensed. Although there are data available on day care center workers, such workers comprise a relatively small proportion of the total. In 1975, for example, of the estimated 2.5 million total caretakers (other than parents), only 59,000--less than 3 percent--worked in day care centers (Table 18). An additional 95,000 were licensed day care home providers. These providers pay taxes and appear in labor force statistics; however, together they constituted only 7 percent of all caretakers in 1975. The remaining 93 percent, a total of 2.35 million persons, were working as day care providers but are not typically counted as

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14. Licensing of family day care homes is mandatory in only 38 states while center licensing is required in all states except Mississippi, where it is voluntary. Westat (1971) estimated that in 1970 only 2 percent of day care homes were licensed. Hall and Weiner (1977) found that 8 percent of the family day care homes in Denver and 33 percent of those in Seattle were licensed in 1976. The Department of Health, Education, and Welfare assumed 5 percent licensing in its FIDCR appropriateness report (1978). Ten percent is a conservative estimate.

TABLE 17

Estimated supply of day care centers and homes in 1975

	Facilities[a]	Spaces[a]	Estimated full-day preschool enrollment[b]
Day care homes			
Unlicensed	855,000[c]	3,285,000[c]	1,350,000
Licensed	95,000	365,000	150,000
Day care centers	18,300	1,190,000	900,000

a. U.S. Department of Health, Education, and Welfare, March 1976. Estimate for entire United States extrapolated from data reported by 35 states; Abt. 1978.

b. Assuming 1.6 preschool children per day care home.

c. Assuming 10 percent of day care homes are licensed.

part of the labor force. These (unrecognized) 2.35 million workers, primarily women, amounted to about 6 percent of the total (recognized) 1975 female labor force of 37 million women.

Thus there is a substantial group of women providing a service that is not included in the gross national product. Such providers have been found to make a very low profit; they have been said to be subsidizing working mothers by providing low cost care at little benefit to themselves (Hall and Weiner, 1977; Kamerman and Kahn, 1976). Yet the availability of such care has been absolutely essential in enabling mothers of young children to enter the labor force. Factors that have kept these women from entering the labor force and those that may affect the future availability of providers are important questions that we will touch on at a later point.

At the present time not enough is known about day care providers to evaluate existing day care needs. As far as the supply of centers, the evidence is contradictory. The supply of centers has expanded greatly over the past decade. Between 1970 and 1975 the number of spaces doubled while the number of preschool children of working mothers increased by only about 15 percent (U.S. Department of Health, Education, and Welfare, 1976; Long, 1974). Although almost half of all day care centers maintain waiting lists, large numbers of unfilled spaces are reported and several studies have found that,

TABLE 18

Preschool children of mothers in the labor force in need of day care, numbers of caretakers and facilities needed, 1975 and 1990 (in thousands)

Day care arrangement	1975			1990		
	No. of children[a]	No. of caretakers[b]	No. of facilities[c]	No. of children[a]	No. of caretakers[b]	No. of facilities[c]
Not in need of care						
In care of parent or sibling	2,084	---	---	3,345	---	---
In need of care						
Noncenter care	3,973	2,481	2,481	6,376	3,985	3,985
Other relative						
Child's home	977	610	610	1,568	980	980
Other's home	977	610	610	1,568	980	980
Nonrelative						
Child's home	977	610	610	1,568	980	980
Day care home	1,042	651	651	1,672	1,045	1,045
Day care center	358	59	11	575	96	17.4
Total	4,331	2,540	2,492	6,951	4,081	4,002

a. From Table 16.

b. At 1.6 preschool children per caretaker in noncenter care and 6 preschool children per caretaker in day care centers.

c. At 1.6 preschool children per home and 33 preschool children per day care center.

in general, centers operate at about 80 to 85 percent of capacity (Westat, 1971; Hall and Weiner, 1977). Costs of care to parents appear to have just kept pace with inflation. The evidence is even less clear for day care homes. The number of licensed day care homes also more than doubled between 1970 and 1975; whether this increase resulted from new entries or from the licensing of existing arrangements is not known.

Up to this time it has been easy to become a day care provider, particularly since licensing requirements were not enforced. Moreover, licensing regulations have not been difficult to meet and there has typically been only a very short delay between application and receipt of a license. Since there are few advantages to large-scale operations, a homemaker with children of her own can operate out of her home just as efficiently or more so than a larger, more formal center. Yet requirements for federal funding have become more stringent and more complex; licensing regulations have become harder to meet and are more strictly enforced; and more and more time is spent in filling out forms. Thus in-home providers may find their position steadily less attractive.

Summary

The evaluation of day care remains problematic. As highly publicized as it is, center care constitutes but a small part of the daytime care of children. Most children are cared for in informal arrangements, which are generally satisfactory to parents, at least while their children are young. Yet the system of informal care can be characterized as fragile. The majority of providers are not, at present, licensed; most are not affected by income tax or Social Security, let alone licensing requirements and regulations. Trends point toward interference in this system: first, from more requirements for entry as a day care provider and increased pressure to license and control; and second, from greater competition from wages and salaries in the formal labor market. The continued movement of women into the labor force is likely to increase the need for care and simultaneously decrease the pool of providers of low-cost, at-home care. What then are the prospects for the next decade?

Day Care over the Next Decade, 1980-1990

Assuming that the preferences of parents stay about the same, we estimate that the number of preschool children (with mothers in the labor force) cared for in day care centers and nursery schools will increase by two-thirds,

from 354,000 in 1977 to 575,000 in 1990 (Table 16). In line with current preferences, the largest proportion of preschool children--some 6.5 million--will still be cared for by their parents, an older sibling, or another person in the child's home. In Table 18 the numbers of caretakers and facilities that will be needed to care for these children are estimated. By 1990 some 17,400 day care centers and some 1 million family day care homes will be needed to care for 2.2 million preschool children whose parents prefer such care. Estimates indicated that in 1975 there were some 18,300 day care centers available, more than needed in 1990 (U.S. Department of Health, Education, and Welfare, 1976). This excess of supply over demand is not the case with family day care. In 1975, there were an estimated 95,000 licensed family day care homes. However, there may be as many as 950,000 licensed and unlicensed family day care homes. An estimated 1 million more homes (non-relative and relative-operated) will be needed by 1990.

Not only will a large number of facilities be required, but the total number of caretakers needed will be substantial. The present structure of care is such that 2.4 million caretakers (other than parents) each care for an average of 1.6 children (not including their own); 59,000 day care center workers each look after 6 children. By 1990, a total of 4 million nonparent caretakers will be needed for 6.9 million preschool children of working mothers, 60 percent more than presently provide such care. If conditions do not change, underutilized day care centers and perhaps crowded care homes and desperate parents can be expected in the future.

However, it is not likely that conditions will stay the same over the next decade. These projections were developed on the assumption that parents' preferences for the care of their children would not change. Changing costs of care, shortages of different types of care, or changes in public policy were not taken into consideration. Although no one knows exactly what changes will occur, the trends can be examined. Based on an understanding of the factors influencing parents' decisions as to the care of their children, it is possible to suggest how such changes will affect preferences in the next decade. In the same way the effect such changes will have on the supply of care by providers can be estimated.

Many of these changes will affect demand and supply by changing the relative availability and price of care. An increase in the wages or benefits of day care providers increases the cost of day care. Parents can then be expected to substitute less expensive forms of care. On the other hand,

if the wages of working mothers increase, they may be more likely to use more expensive modes of care. Since both changes are likely to occur, the relative wages of mothers and caretakers will be crucial not just to the choice of care, but to the decision of whether to work or stay home.

In deciding whether or not to take in others' children, caretakers will weigh the benefits of caring for children against those of entering the formal labor force and against caring only for their own children. The low wages of day care providers have been discussed; however, if these wages rise above the level mothers are currently willing or able to pay, mothers are likely to remain out of the labor force, unless they can afford to pay for the privilege of working. Professional women, for example, may continue working even if child care expenditures eat up much of their take-home pay, if they enjoy their profession or if they believe that remaining in the labor force will enable them to maintain their seniority, keep up with the field, and so increase their future earnings. However, this may not be a viable option for many. Labor force participation is the most important factor, therefore, in determining both demand for and supply of care. What other sorts of factors are likely to affect either the demand for different types of care or the availability of such care over the next decade? The most important of these are demographic changes.

Demographic Changes

Fertility and family structure are the main demographic factors affecting the demand for day care. Female-headed families and small families are more likely to use licensed centers and homes than are two-parent and large, extended families. There has been an enormous increase in the number of families headed by one parent (usually the mother) in the last decade (U.S. Bureau of the Census, No. 187, 1969; No. 323, 1978). As a result, the proportion of children living with both parents has also declined. In 1968, for example, 87 percent of all children under six were living with both natural parents (Table 19). By 1977, that percent had dropped to 81 (U.S. Bureau of the Census, No. 323, 1978). These figures mask enormous race differences. Fewer than half (44 percent) of all black preschool children were living with both natural parents in 1977, compared with 87 percent of white preschoolers (ibid.). Most of these children were living with their mothers. In 1977, 15 percent of all preschool children were in female-headed families, 10 percent of whites, 41 percent of blacks. Fewer than 1 percent were in single-parent, male-headed families. There has also been an increase in the

TABLE 19

Family relationship and presence of parents, children under 6, by race, 1968 and 1977

All races	1968		1977	
	Number	Percent	Number	Percent
Total	22,932	100.0	18,620	100.0
In families	22,809	99.5	18,509	99.4
Living with both parents	19,918	86.8	15,018	80.6
Living with mother only	2,138	9.3	2,745	14.7
Living with father only	109	0.5	128	0.6
Living with neither parent	645	2.8	619	3.3
Not in families	123	0.5	111	0.6
White				
Total	19,129	100.0	15,332	100.0
In families	19,050	99.6	15,263	99.5
Living with both parents	17,591	91.9	13,388	87.0
Living with mother only	1,178	6.2	1,546	10.1
Living with father only	67	0.3	102	0.7
Living with neither parent	213	1.1	226	1.5
Not in families	79	0.4	69	0.4
Black				
Total	3,487	100.0	2,845	100.0
In families	3,450	98.9	2,809	98.7
Living with both parents	2,069	59.3	1,237	43.5
Living with mother only	916	26.3	1,162	40.8
Living with father only	42	1.2	26	0.9
Living with neither parent	424	12.1	385	13.5
Not in families	37	1.1	36	1.3

SOURCE: U.S. Bureau of the Census, "Marital status and family status," March 1968, Current Population Reports, Series P-20, No. 187, 1969; U.S. Bureau of the Census, "Marital status and living arrangements: March 1977," Current Population Reports, Series P-20, No. 323, 1978.

proportion of preschool children living in families, but with neither parent. The proportion of such white children increased 36 percent from 1.1 in 1968 to 1.5 in 1977, that of black children increased 12 percent from 12.1 to 13.5 percent. Although a large proportion are probably living with other relatives, a substantial number may be in foster or adoptive homes.

Ross and Sawhill (1975) documented the growth of families headed by women. They found most of this increase due to divorce and separation, with a small part due to out-of-wedlock childbearing. Recent data indicate a stabilizing of the divorce rate; for the first time in a decade the increase has stopped. Whether this is only temporary, and whether the divorce rate will increase or decline is not known. At the present time, one-third of all marriages are expected to end in divorce, and from one-third to one-half of all children born in the 1970s are expected to spend at least a few years in a female-headed family before they reach 18 (Glick and Norton, 1977; Bane, 1976). However, children in female-headed families, as in other families, are most in need of day care if the mother works outside the home. In 1977, about the same proportion--15 percent--of the preschool children of working and nonworking mothers were in female-headed families (U.S. Dept. of Labor, 1977; U.S. Bureau of the Census, No. 66, 1978). Therefore, factors affecting the growth in families headed by women should affect the growth in the number of preschool children of employed female family heads. If the divorce rate continues to increase, or at least fails to decline, the demand for centers and licensed homes should continue to increase as single parent families are more likely to use such care for their young children.

The other source of growth in female-headed families is out-of-wedlock births. Out-of-wedlock births are only a small proportion of total births: 15 percent in 1976. In addition, most mothers eventually marry. However, they do constitute a problem when the mother is young (half of all out-of-wedlock births are to teenagers) and poor (46 percent of the families receiving AFDC in 1973 contained at least one out-of-wedlock child) (Moore and Caldwell, 1976). Although never-married mothers with young children are an important group, they are less so with respect to child care, because they are less likely to be working (U.S. Dept. of Labor, 1977).

There has also been a trend toward smaller families. Census Bureau projections are based on the assumption that current cohorts will have an average of 2.1 children per family by the time they finish their childbearing (U.S. Bureau of the Census, No. 601, 1975c; ibid., No. 308, 1977a).

A larger proportion of families will have one or two children; a much smaller proportion of families will have three or more children. If, in addition, their children are more closely spaced, it is unlikely that both preschool and adolescent children will be present at the same time; the likelihood of using in-home care is reduced even further. Since parents can better afford tuition or fees if they have only one or two children, we might expect an increase in the use of centers and licensed homes to result from declining family sizes. Families are also small because they are less and less likely to consist of more than parent and child generations. In 1969, for example, about 89 percent of all families with their own children were of the nuclear type. Less than 7 percent consisted of three or more generations (U.S. Bureau of the Census, No. 476, 1972). The increasing popularity of separate residences for the elderly removes a traditional source of child care, and greater mobility separates families from kin, even as neighbors. Continued trends toward nuclear family structure, first manifested in the tendency for female family heads to establish their own households after disruption, and continuing with the increased tendency of single youth and the elderly to head their own households, will probably result in greater reliance on center and out-of-home care.

Geographic mobility is another factor affecting the demand for day care. Half of the population moves every five years. Parents tend to be less mobile while their children are in school than when they have either very young or grown children. Any increase in that mobility would increase the demand for center care.

Demographic changes are likely to affect the supply of caretakers of certain ages as well as the number of school-age children in need of care and parental preferences as to the type of care. As birthrates decline, the proportion of elderly persons increases relative to younger age groups. The increased number of senior citizens, coupled with the increased participation of young women in the labor force, may result in a shift toward older caretakers both as in-home providers and as day care center workers (not necessarily for their own grandchildren). Of course, the large number of young women and men in their twenties and thirties available for employment may make it harder to get a job, which may increase the attractiveness of being an in-home day care provider. In addition, the decreased number of preschool children has made it difficult for teachers to find work, a situation that is expected to become worse, not better (Abramowitz and Rosenfeld, 1975). The

surplus of trained and certified teachers may be increasingly funneled into day care, or into "preschool education." Certification levels for day care providers are continually upgraded, and some states (Maryland, for example), are already providing a half day of formal schooling for four-year-olds.

Thus, it is unlikely that demographic changes of the type we have described will occur without concomitant changes of other types. Specifically, the offsetting or multiplying effects of changes in employment conditions, changes in attitudes, and, finally, changes in public policy should be considered.

Changes in Employment Conditions

Changes in the structure of work have been slow in developing, but would have substantial impact on the demand for day care. Mothers working part time are much less likely to use day care centers. Increased flexibility of work hours (flexitime) and increased access to part-time employment would allow parents in two-earner families to share child care. It would also facilitate cooperative day care arrangements among neighbors, friends, and relatives.

The impact that flexible scheduling of work hours would have on the use of day care by two-parent families is dependent on the willingness of fathers to share in child care. There is some evidence that fathers do share the care of their children with their wives. In 1965, almost half the children of working mothers who were cared for principally by a parent (i.e., their own) were cared for by the father while the mother was working (Low and Spindler, 1968). In 1975, of the three- to six-year-old children of full-time working mothers who were cared for by a parent, about one-sixth of the white children and about one-quarter of the black children were cared for by the father (U.S. Bureau of the Census, No. 298, 1976a). Dickinson found that in one-quarter of all two-parent families, the parents split the care of their children during work hours (Dickinson, 1975).

Increased wages for women working outside the home would encourage some women to move out of marginal employment as home day care providers. In addition, creation of part-time and flexitime job opportunities or provision of day care at the work place may encourage more women to work outside their homes rather than to provide in-home care for other people's children. Increased employment opportunities would also serve as an incentive to switch from informal to formal sectors. In Sweden, for example, good job

opportunities and wages have made it more desirable for women to move into the labor force and pay for day care than to work as in-home day care providers outside the formal labor force. However, women in Sweden have been encouraged to work. Socialism may both encourage working and collective day care and discourage even the wealthy from hiring housekeepers.

Changes in Attitudes

The Swedish experience suggests that one of the most important of all changes is attitudinal. Changes in attitudes regarding the desirability of center care for young children, the father's role in child rearing, and the relative roles the family and other institutions should take in the rearing of the young can be expected to affect the demand for formal versus informal care. Such change has been very slow, however. Demographic changes might play a role in changing attitudes. As female family heads and women with fewer children become more numerous, their views (presumably favoring formal day care modes) will become more influential.

Along with changes in economic incentives and disincentives for women to select various occupations, attitudes regarding the appropriate caretakers for children and the appropriate roles for women may affect providers. Working in another's home, for example, may be seen as demeaning, whereas working in a formal day care center at competitive wages may be perfectly acceptable. Such attitude changes would reduce the supply of such types of care as babysitters, housekeepers, and maids. A logical result might be the professionalization of child caretakers, and concomitant increases in their wages and salaries.

Changes in Public Policy

Direct federal expenditures on child care amounted to some $2.5 billion in fiscal year 1977. Public policies also affect demand and supply in other ways.

Numerous policies can affect demand. Those which lower the cost and raise the quality of formal care, or which raise women's wages, are likely to increase the use of formal care. Welfare policies that require women to work or that provide benefits below minimum living standards will force women to work and increase the need for day care. On the other hand, policies which promote flexible scheduling of work and extended pregnancy or parental leave for men and women may decrease the demand for formal modes of care. Besides direct regulations and requirements, such as for the receipt of welfare or

food stamps, various government policies can encourage mothers of young children to enter or stay out of the labor force. Policies that provide a public service job to the male head in two-parent families (as in proposed welfare reform legislation) or that offer generous maternal work leave while children are young (as in some European countries) should reduce day care demand. Finally, tax policies that allow deductions for expenditures on certain types of day care and not others will increase the reliance on those types of care.

Federal funds are the principal source of support for research and evaluation. Decline in interest in (and funding for) early childhood educational programs coincided with the failure of various research efforts to find lasting benefits resulting from Head Start (Steiner, 1976). Recent research that indicates considerable long-term benefits of early education may once again stimulate interest in such programs and increase demand by parents for such care (U.S. Department of Health, Education, and Welfare, 1977).

On the supply side, public funding has been very important in the development of the nonprofit day care center, and the subsidization of low-income families continues to support such centers. The direction of future funding will be critical to the future supply of center care. The federal role in setting standards for facilities and staff also affects the cost and price of formal care, and the willingness and ability of providers to enter or remain in the field. Rigorous enforcement of licensing requirements may raise the price and lower the supply of the present low-cost care in day care homes as well.

Social security, income tax, and welfare rules can also affect the supply of in-home providers. Earnings limits for recipients of AFDC limit the amount of money such women might earn by babysitting or by providing home day care. Older individuals, who might serve as caretakers, are also restricted in earnings, up to a certain age. Such restrictions would discourage retirees from providing day care.

On the other hand, one of the advantages perceived by in-home day care providers is that evasion of taxes and social security payments is possible. As long as a person cares for only a few children and does not advertise, the chances that anyone will question his or her tax status are minimal. There may be no short-term economic advantage to working outside the home for many married women, especially if they must pay for child care and if the extra income brought into the household increases the family's total tax burden. In addition, given the structure of the present social security

system, the benefits that most married women would accrue based on their own earnings outside the home are lower than those they receive as wives or widows, without any contribution to the system at all. Given recent legislation which will substantially increase the bite taken by social security taxes out of individual paychecks over the next several years, the benefits of formal labor force participation will decline even further. Thus, over time the advantages of staying out of the formal labor force may increase. One of the reasons for the lack of information about informal day care arrangements is the reluctance of providers to talk about their source of livelihood. Increased surveillance by the Internal Revenue Service and crackdown on small-income recipients, though unlikely, would greatly decrease the supply of low-cost day care arrangements.

Summary

The demand for day care depends largely on women's labor force participation, as well as on their fertility. Given current trends, the number of preschool children of working mothers is expected to increase by 67 percent by 1990, while the number of preschool children is expected to increase by 45 percent. Whether there will be enough adequate care for the children of working mothers depends on the demand for and supply of different types of care. Is it a two-parent family or a single-parent family headed by a woman? Is there a nonworking adult or an adolescent child? All the preschool children of working mothers need daytime care; however, the two-parent working couple probably has more available options than does the single working parent, and as a result is less likely to use day care centers. In addition, the working female family head is more likely to be poor, and her children to be in subsidized care. Therefore, any future increases in female headship should result in increased demand for center care. However, since it is this group of women whose care is most sensitive to federal and state policies, projection of future need based on current trends is highly speculative. Finally, the availability and cost of day care will also be influenced by employment policies, welfare and social security policies, and federal regulation.

Day Care Policy

Although there are other reasons why mothers might want or need day care for their preschool children, it remains an issue of primary importance for working mothers. Part-time work and flexible scheduling of hours will help

married mothers resolve the child care dilemma; however, many will still need to rely primarily on day care, as must single mothers. The goal of concerned policymakers should be to facilitate the maximum of choice and quality with the minimum of cost and red tape.

It is important to note that there is no typical parent or typical child at any age. Needs and preferences of children and parents differ from family to family. Some parents use day care primarily as a means of supervision and care while they are working. Others view day care as educational or developmental; many nonworking mothers send their children to nursery schools for this reason. Rather than regulating all care as though it were developmental, it might be desirable, for example, to establish minimum standards for various types of care. Aided by a publicly supported information and referral service, parents would then be free to select the type they prefer.

Whether all care should be regulated is a difficult question, and certainly there is no immediate threat of investigation to the millions of unlicensed babysitters and caretakers. More attention might be profitably paid to educating parents as to what constitutes high quality care and how to distinguish it from poor quality care. Finally, more attention might be paid to the dilemma of mothers who wish to work, who can make enough so that they do not qualify for welfare, but for whom working minus child care does not leave them a decent living.

European employment and family policies appear to be more closely integrated than are those of the United States. Although some feared that increased benefits such as paternity and child care leave would be pronatalist, increased fertility has not in fact been the result. Work and family life may only be inimical because policymakers have not taken into consideration the family involvements of both men and women, but have seen instead the one-dimensional worker.

The prospects for day care of children of working mothers over the next decade, given current trends and policies, have been reviewed. Whether there is or is not a shortage at present and whether or not there will be one in the future is debatable at the present time. There is simply not enough information available on parental needs or on the availability of different types of care.

However, there may be a shortage of care provided in homes for the 6.3 million children of working mothers who prefer such care, and this would mean that more day care centers are needed. If labor market opportunities

become more attractive, it is likely that fewer women will be willing to remain in what has been found to be a rather poorly paid profession[15] except while they themselves have small children. The supply of such caretakers may be even more critically affected if a greater attempt is made to incorporate all child care providers under a single set of standards into the market economy/formal labor force. Thus, depending on the demand for women in the labor force, the market wage, and enforcement of current laws and regulations, women may or may not find it profitable to provide low-cost child care for even a certain period of their lives.

An alternative scenario might show more day care provided by senior citizens, and greater reliance on cooperative arrangements and sharing of child care by fathers. However, unless there is a reversal in the trend toward entry into the labor force of mothers of young children, some additional need for center care over the next decade appears inevitable. Even assuming increased availability of part-time work and jobs with flexible schedules, the demand for center care will probably grow because of a larger number of single parents and small and highly mobile families, and because of the rising cost of in-home care.

The future of day care over the next decade depends on demographic, socioeconomic, ideological, and attitudinal trends, and on government policy. Current policies are inconsistent in that they overtly promote the use of licensed day care homes and centers, yet make it less and less profitable for providers, and more and more costly for parents. Nor do they facilitate transitions between work and child rearing. Major re-evaluation of day care goals and policies is likely to take place over the next decade. Such re-examination will be fueled by short-term increases in preschool populations, expectations of long-run decreases, and some recently published studies that show some very long-range positive results for children of early childhood education. In any case, important efforts will be directed toward evaluating, first, the goals and outcomes of day care and family policies and, second, the impact on the family and day care of policies in other areas, such as revenue, employment, population, and welfare.

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15. Although the avoidance of income and social security taxes may make it more attractive than labor force participation to some.

APPENDIX A. THE EFFECT OF MARITAL AND CHILD STATUS ON THE FUTURE GROWTH OF THE FEMALE LABOR FORCE

Shifts in the number of women who are married and who have young children appear to have been important causes of changing patterns of female labor force participation in the past. Oppenheimer (1970) argues that a reduction in the supply of young, single women (the female workers preferred by employers) between 1940 and 1960 is a factor in the increase in market work by older, married women during that time. More recently, Smith (1977b) finds that during the early 1970s growth in the relative size of marital and child status groups with high labor force participation rates is responsible for about a third of the increase in the female labor force during this period. The purpose of this appendix is to examine available evidence on the role that women's marital and child status will play in determining future shifts in work patterns of adult females. We begin with an examination of the impact of marital status on market work by women.

It is a truism that married women are less likely to participate in the labor force than those who have never wed or those whose marriages have dissolved. That marriage causes women to leave the labor market is also an accepted fact. However, no systematic study of the effect of a wedding on market activity of the new wives has been done. In fact, few researchers have explored the factors which influence work by single women; most have focused on determinants of labor force participation of married women. One exception is the work by Bowen and Finegan (1969). But even this important work on the causes of market activity does not compare single women (that is, those not currently married) with wives with husbands present. Such comparison is essential for understanding the impact of marriage on labor force activity. As Bowen and Finegan argue, never-married women probably have a stronger taste for paid employment than others, a factor which in many cases contributes to their decision not to wed. Without controls for differences in such characteristics between wives and single women, a determination of the independent impact of marriage on labor market behavior is not possible. Since such a determination

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has not been attempted (most probably because of the complexity of the undertaking), information on the effect of marital status on female market activity is restricted to simple tabulations with a few controls. Such tabulations have been explored extensively. (For a detailed analysis of the available information on the effect of marital status on women's market activity, see Smith, 1977b.)

No research has been done which allows an estimate of the effect of marital status on labor force participation of women, net of differences in taste for work, education, past experience, competition from other activities, and so on. Therefore, changes in the net effect of marital status over time cannot be determined even though such changes appear to have been rapid and substantial. But, if one cannot analyze changes in the impact of marital status on female labor force participation, one can at least examine shifts in the frequency of marriage and marital dissolution.

Projections of the marital status of the female population prepared by the U.S. Bureau of the Census (1975a) indicate only minor changes by 1990. These projections are shown in Tables A-1 through A-5. The percentage of young adult women who are married is projected to decline slightly by 1990. This pattern is most apparent among those under twenty-five but also present among those twenty-five to twenty-nine. The percentage of older women married and living with their husbands is projected to rise, due in large part to increases in the life expectancy of males. This increase is very modest however. As Table A-2 shows, these patterns are virtually the same under alternate assumptions about the rate of population growth.

The Census Bureau projections also indicate a small rise in mean age at first marriage for women by 1990 (Table A-4) and virtually no change in the percentage who are widowed, separated, and divorced (Table A-5). These projections suggest that if marital status plays a part in changing female labor force participation during the next ten to fifteen years, this effect probably will not be due to substantial alterations in current patterns of marriage and marital dissolution. If such a change occurs, the mechanism is likely to be a change in the inhibiting effect of wedlock on the market activity of women, rather than a change in the frequency of marriage itself.

A note of caution should be introduced here. All projections, even when carefully done by the most knowledgeable analyst, involve guesses about the future. Those guesses are subject to error, both because of changes in the conditions on which the projections were based, and because of

TABLE A-1

Percent of adult female population married, spouse present, by age, 1975-1990

Age	1975	1980	1985	1990
Total, 14 years and over	56.8	57.5	58.7	59.9
14 to 17	2.5	2.1	1.9	1.6
18 and 19	20.4	18.4	16.4	14.3
20 to 24	52.4	49.6	46.9	43.9
25 to 29	74.1	73.2	72.4	71.6
30 to 34	79.8	79.4	79.2	79.0
35 to 44	79.8	80.0	80.4	80.7
45 to 54	77.4	78.9	80.4	81.8
55 to 64	66.1	67.4	68.9	70.4
65 to 74	45.1	45.4	45.7	46.1
75 years and over	20.9	20.6	20.4	20.2

SOURCE: U.S. Bureau of the Census (1975a, pp. 17-19).

TABLE A-2

Percent of adult female population married, spouse present, under assumptions of high, medium, and low population growth, 1975-1990

Females, 14 years and over	1975	1980	1985	1990
High	56.8	57.4	58.6	59.7
Medium	56.8	57.5	58.7	59.9
Low	56.8	57.6	59.0	60.2

SOURCE: U.S. Bureau of the Census (1975a, pp. 17-19).

TABLE A-3

Projections of marital status of the adult female population, 1975-1990

Females, 14 years and over	1975	1980	1985	1990
	85,065	90,997	95,641	99,155
All marital statuses	100.0	100.0	100.0	100.0
Single	22.6	21.8	20.3	18.8
Ever-married	77.4	78.2	79.7	81.2
Married, spouse present	56.8	57.5	58.7	59.9
Other	20.6	20.7	21.0	21.3

SOURCE: U.S. Bureau of the Census (1975a, pp. 17-19).

TABLE A-4

Percent of adult female population never married, by age, 1975-1990

Age	1975	1980	1985	1990
Total 14 years and over	22.6	21.8	20.3	18.8
14 to 17	96.7	97.0	97.4	97.8
18 and 19	75.9	78.3	80.8	83.4
20 to 24	40.3	43.1	46.2	49.5
25 to 29	13.4	14.4	15.4	16.4
30 to 34	7.0	7.1	7.2	7.3
35 to 44	5.0	4.8	4.6	4.4
45 to 54	4.3	3.4	2.8	2.2
55 to 64	5.6	5.2	4.9	4.5
65 to 74	6.9	6.9	6.8	6.8
75 years and over	6.7	6.3	6.0	5.7

SOURCE: U.S. Bureau of the Census (1975a, pp. 17-19).

NOTE: These projections were made for individual years so some inconsistencies for cohorts occur.

TABLE A-5

Percent of the adult, female population widowed, separated, and divorced; by age, 1975-1990

Age	1975	1980	1985	1990
Total, 14 years and over	20.6	20.7	21.0	21.3
14 to 17	1.0	1.0	1.0	1.0
18 and 19	3.7	3.3	2.8	2.3
20 to 24	7.4	7.2	7.0	6.6
25 to 29	12.5	12.4	12.2	12.0
30 to 34	13.2	13.5	13.6	13.7
35 to 44	15.2	15.2	15.1	14.9
45 to 54	18.3	17.7	16.8	15.9
55 to 64	28.3	27.4	26.3	25.1
65 to 74	48.0	47.8	47.5	47.1
75 years and over	72.4	73.1	73.6	74.2

SOURCE: U.S. Bureau of the Census (1975a, pp. 17-19).

misinterpretation of those conditions. The Census Bureau projections of marital status used here appear to be rather conservative in that they assume no major changes in patterns of marriage, divorce, or even mortality between 1975 and 1990. However, there is little evidence to suggest that large and important shifts are underway in any of these areas. Divorce rates, while high, appear to have stabilized. Most individuals who divorce remarry, often quickly, and death rates have changed little in the last several decades. The number of people cohabiting has increased greatly in recent years (U.S. Bureau of the Census, No. 312, 1977b), but whether living together is a permanent alternative to marriage or a stage which typically precedes it is not yet clear. Permanent cohabitation may have much the same effect on the labor force participation of the women involved as marriage (that is, little effect in the absence of children and a substantial impact when they are present). Thus, the conservatism reflected in Census Bureau projections of marital status appears to be defensible at the least, and probably well founded.

One reason, perhaps the primary reason, that many married women in the United States are not in the labor force is the traditional assignment to the wife of responsibility for household maintenance and child care. Presence of children, especially young children, historically has been the most powerful impediment to the employment of their mothers. Sweet (1968; 1974) found that the effect of the age of the youngest child on the mother's employment was approximately linear from age one to age twelve with about a 2 percent rise in labor force participation with each year of increase in the age of the youngest child. Cohen et al. (1970) found the presence of a child under six years old to have the largest effect of any of the variables in their model of employment of married women. A similar finding was reported by Cain (1966). Including a dummy variable for presence of children under six years old in a model of labor force participation of white women, he found that the regression coefficient for this variable was the largest in the model and more than twice as large as the next largest coefficient (ibid., p. 94). Why should the fact that a woman has young children have such a powerful inhibiting effect on her labor force activity? To answer this question the theoretical framework developed by economists to explain work decisions can be employed.

Traditional economic theory has dealt with labor market activity by assuming a simple dichotomy between work on the one hand and leisure on the other. This theory states quite simply that if a worker's real wages go up,

leisure time becomes more expensive and the worker tends, all else equal, to supply more hours of work to the market. This effect is called the wage or substitution effect. Counterbalancing it is the income effect. Besides increasing the cost of leisure to the worker, the higher wage just mentioned also increases the worker's income for a given number of hours worked. The higher income allows the worker to purchase more goods and services in the market. One such trade-off theoretically would be more leisure. This is the case because leisure is referred to by economists as a "superior good." So the wage increase has two opposing effects: The wage effect pulls the worker toward more labor force activity while the income effect acts to diminish this activity. The question of which effect is stronger is an empirical one which must be answered separately for different situations.

There is a problem with this formulation. As Mincer (1962) points out, the work-leisure dichotomy is not exhaustive. It is especially inappropriate for married women who may substitute full-time work in the home for market activity. Of course, any individual may substitute work at home (for example, building furniture, repairing or remodeling a home, making clothing) for market work. The amount of the "homework" done depends on the cost of purchasing the good or service produced by the homework and on the preference of the individual for doing homework rather than market work. Another consideration is the degree of substitutability between the home-produced good or service and the purchased counterpart. Mincer suggests that this substitutability between home and market factors of production is reduced greatly when there are young children in the home. This is the case because, unlike many other goods and services traditionally produced by a woman who works in the home full time, it is difficult to find an acceptable substitute for parental care of young children. Young children greatly increase the amount of homework required and therefore the cost of purchasing market substitutes for it and, in addition, often decrease the acceptability of purchased substitutes.

There are social as well as economic reasons why mothers of young children are less likely than other wives to be gainfully employed. There is a fairly strong and pervasive norm that mothers of young children should not work. Analysis of data from the 1970 National Fertility Study by Retert and Bumpass (1974) indicates that while one-third of the mothers in the sample worked in the two-year period since they last gave birth, 80 percent of the women disapproved of employment of mothers whose youngest child is less than two years old, and over three-fourths believed that preschoolers are harmed if their

mothers work (ibid., p. 6). The opinion that separation from a young child can be detrimental to the child has been expressed repeatedly by child development professionals (see, for example, Bowlby, 1963; Goldfarb, 1945; and Spock, 1946). Currently about one-third of the married women with children under three years of age are in the labor force, compared with 44 percent with no children under eighteen (U.S. Dept. of Labor, 1975). When the age of the woman is taken into consideration, the impact of parenthood is even more striking. Among wives twenty-five to thirty-four, 80 percent of the childless and 33 percent of those with a child under three are in the labor force (ibid.). But the inhibiting effect of the presence of young children on the mother's market activity appears to be decreasing. Recently, the fastest growth in labor force participation of married women has occurred among those with preschool-age children (Smith, 1977b). And women are having smaller families now than they did ten or fifteen years ago and starting them later. Surveys of expected family size prepared annually by the Census Bureau indicate that young women, both married and single, think they will have, on the average, two children apiece. Their mothers completed childbearing with between three and four children. Thus, it appears that fewer women have young children now than in the recent past and that having these children does not keep mothers out of the labor force to the extent that it used to.

Let us begin our examination of the effect of presence of children on the future growth of the female labor force with an analysis of the proportion of adult women who have young children and a projection of that proportion to 1990. Table A-6 shows, for 1975 to 1990, the percent of adult women who have had a child (by the age of the woman, plus the mean and median age of mothers at first birth for these years). The projections of first births to 1990 prepared by the Census Bureau (1975b) will form the basis for projections of the presence of young children to that year. But first let us examine the projected distribution of first births. Table A-6 shows that between 1975 and 1990 the proportion of women who are mothers by age twenty will fall from nearly a quarter to less than one-fifth. A trend toward higher rates of permanent childlessness is indicated: The proportion of women who have had no children by age forty is projected to increase from 8 percent in 1975 to 17 percent in 1990. But no change is projected in the proportion of women twenty-five and thirty who have had a first birth. Thus, if these projections accurately reflect the future, childbearing will tend to take place in a shorter period in the lives of women (from twenty to thirty), and more will forgo motherhood completely.

TABLE A-6

Percent of adult women with at least one child, by age of woman and year

Year	Age of woman					Age at first birth	
	20	25	30	35	40	Median	Mean
1975	24.1	58.4	80.9	89.6	91.9	22.17	22.74
1980	25.2	57.3	77.3	85.1	90.4	22.49	23.08
1985	22.2	60.3	76.6	82.3	86.2	22.75	23.30
1990	18.9	58.3	79.9	81.3	83.4	22.94	23.41

SOURCE: U.S. Bureau of the Census (1975b, pp. 6-7).

The Census Bureau projections of first births, reported in Table A-6, were combined with various assumptions about the timing and frequency of later births and were used to generate projections of the proportion of women with young children of birth orders of one to four or more. The results of these calculations, presented in Tables A-7 through A-10, are described and then their implications discussed. The Census Bureau has produced projections of first births only, so guesses about future higher-order fertility must be made to determine the proportion of women who have any young children present. Since many of the Census Bureau projections are presented for five-year intervals, and because preschool ages usually are considered to be one through five, the presence of children five years old or younger was projected. The assumptions necessary to estimate the age distribution of children are too complex and untenable to justify. Thus, the projections presented in Tables A-7 through A-10 are restricted to the presence of one or more preschool-aged children. Since the presence of children below school age repeatedly has been found to be a much stronger barrier to employment of women than the presence of older children (Bowen and Finegan, 1969; Cohen et al., 1970), these calculations should reflect the most important effect of parenthood on women's market activity.

Projections of the proportion of women who have borne a first child by various ages, shown in Table A-6, are rearranged to show the proportion of women who had become mothers first within the last five years. Table A-7 shows the proportion of women at various ages who are projected to have a first child five years of age or under to 1990. This table reflects the assumption that mother's age at first birth will rise by 1990. By that year a relatively small

proportion of women twenty and younger will have a first child of preschool age. This proportion will increase among those twenty-five, remain about the same among women age thirty and forty and decrease substantially among those age thirty-five. Since the vast majority of women are either in school or in the labor force until they have their first child, an increase in the average age at which women have this birth means the average new mother in 1990 will have more work experience than her counterpart in 1975. With this work experience usually goes higher pay and a higher opportunity cost for dropping out of the labor force and having a child. In addition, a number of sociologists have argued that women who first become mothers at relatively older ages have an opportunity to develop a taste for nonfamilial roles such as employment (Presser, 1971; Mason, 1976). So an increase in mean age at first birth by 1990 could increase female labor force participation in a number of ways. First, greater earning power which accompanies increased work experience should mean that fewer women can afford to drop out of the labor force when they have their first child. Second, more women may develop a preference for market activity because of labor force participation before their first birth and so minimize absence from their job at that birth.

TABLE A-7

Percent of adult women whose first child is five years of age or less, by age of woman and year

	Age of woman				
Year	20	25	30	35	40
1975	24.1	34.3	22.5	8.7	2.3
1980	25.2	32.1	20.0	7.8	5.3
1985	22.2	38.1	16.3	5.7	3.9
1990	18.9	39.4	21.6	1.4	2.1

SOURCE: Table A-1.

But most women have second as well as first births. Table A-8 shows the percentage of adult women who have a first or second child under five years old. These figures were calculated by assuming that: (1) average spacing from first to second birth would remain at about 2.5 years (U.S. Bureau of the Census, No. 315, 1978b, p. 99), and (2) 10 percent of all women or 12 percent of those

TABLE A-8

Percent of adult women who have a first or second child five years old or less, by age of woman and year

Year	Age of woman				
	20	25	30	35	40
1975	24.1	50.4	40.0	17.5	5.2
1980	25.2	48.9	36.3	15.6	7.9
1985	22.2	52.9	35.7	12.1	5.8
1990	18.9	52.0	41.7	9.8	2.6

NOTES: Assume:

1. Of all births by age 20, 76% are to women 18, 19, or 20 who would have a second child at age 20 or later and so have at least one child 5 or under when they were 25. But 12% of all those who have a first birth have no more - so 66.8% (76.x.88) of all those with a first birth by 20 have a second child at 20 or later. SOURCE: U.S. Bureau of the Census (1975b, p. 8).

Age	Percent	
20-25	50.9	} have a second child ≤ 5 at next highest age category
25-30	39.1	
30-35	33.5	

2. 10% of all women have only one child (12% of those with a first birth). SOURCE: U.S. Bureau of the Census (1977a, p. 14).*

3. 2½ years from first to second birth. SOURCE: U.S. Bureau of the Census (1978b, p. 99).

*Explication of assumptions 2 and 3:

Assume 2½ years from first to second birth. Then:

a. Of all first births by 20 (263.8/1000)
200/263.8 = 75.8% are to those 18, 19, or 20.
These women would have had a second birth at 20 or older.

b. Of all first births between 20 and 25 (366.2/1000)
211.5/366.2 = 57.8% are to those 23, 24, or 25.
These women would have had a second birth by 25 or older.

c. Of all first births between 25 and 30 (177.4/1000)
78.7/177.4 = 44.4% are to those 28, 29, or 30.

d. Of all first births between 30 and 35 (35.4/1000)
13.5/35.4 = 38.1% are to those 33, 34, or 35.

SOURCE: U.S. Bureau of the Census (1975b, p. 8).

Number of lifetime births expected by women 18-34, 1976:

0	10%
1	12%
2	47%
3	20%
4+	11%

SOURCE: U.S. Bureau of the Census (1977a, p. 14).

who have a first birth do not have a second birth (ibid., No. 308, 1977a, p. 14). So, for example, in 1975, 24.1 percent of all women twenty or younger had had a first birth. Census Bureau projections of first births by single years of age indicate that 76 percent of the first births by age twenty occur to women eighteen, nineteen, or twenty. All but 12 percent of these women are assumed to have a second birth within 2.5 years, that is, at age twenty or later, and so have a child five years old or younger when they are twenty-five. The proportion of those having a second birth between twenty and twenty-five is added to the proportion having a first birth between these ages and results in 50.4 percent of women at age twenty-five with either a first or second child of preschool age in 1975. This same procedure was applied to the other ages and years in Table A-7 to produce Table A-8. A similar technique was used to project the proportion of women who would have a third or fourth child under five years old at various ages. These figures are given in Tables A-9 and A-10. The assumptions used to generate these figures are presented with the tables. Since only a small proportion of American women expect more than four children, calculations include only this number.

Table A-10 is worth reviewing briefly since it presents the proportion of adult women who will have any young children in various years to 1990. The proportion of women in the prime childbearing ages (twenty to forty) who have any young children is calculated as a simple weighted average using the projected female age distribution in the year in question. Table A-10 indicates that changes between 1975 and 1990 in the proportion of adult women who have any preschool-age children will be modest with a slight decrease at the oldest and youngest ages and virtually no change in between. At twenty-five and thirty, about half of all women currently have and are projected to have in 1990 at least one young child. The proportion of the total adult female population with a child five or under will not change at all, remaining at about one-third in 1990. Thus, little effect of the distribution of young children among adult women on their market activity can be expected between 1975 and 1990. However, changes in the timing of childbearing could have a substantial impact by increasing the number of women who have jobs when they become pregnant with their first child, by increasing the average work experience and thereby average earnings when this event occurs, and by altering women's relative preference for satisfactions from employment and motherhood. While the average size of the family women have is projected to decrease somewhat within the next fifteen years (U.S. Bureau of the Census, No. 308, 1977a), the number

TABLE A-9

Percent of adult women who have a first, second, or third child <5, by age of woman and year

Year	Age of woman				
	20	25	30	35	40
1975	24.1	50.4	44.6	22.0	7.2
1980	25.2	49.0	41.1	19.8	9.7
1985	22.2	53.0	39.9	17.1	7.2
1990	18.9	52.0	45.3	14.9	4.5

NOTES: Assume:

1. 3-3½ years second, third births.

2. Of those with a first birth, 35% have a third.

3. All those with a first birth by 20, 35% of those who had that birth at 19 or 20 have a third birth at age 25 or older and have at least one child <5 at age 30.

   a. Of all first births by 20, 54.4% at 19 or 20

   b. Of all first births between 20 and 25, 37% at 24 or 25

   c. Of all first births between 25 and 30, 25.1% at 29 or 30

so: of those with a first birth by 20, 19.0% have a third child by 25 or older. 20-25 = 13.0% 25-30 = 8.8%.

of children present has been found in recent research to have little or no impact on the labor force participation of the mother (Macke et al., 1978). In sum, any impact of the presence of young children on changes in the labor force participation of women from the present to 1990 probably will be due to shifts in the timing of childbearing rather than to alterations in the distribution of either the number or ages of children.

The basis for these conclusions is a series of assumptions about the future course of fertility in the United States. These assumptions, which are essentially guesses, albeit educated guesses, may prove incorrect as may the conclusions on which they are based. For this reason, it seems important to evaluate the Census Bureau projections of first births upon which our calculations and conclusions rest. The Census Bureau produces three series of

TABLE A-10

Percent of adult women who have any children < 5, by age of woman and year

Year	Age of woman				
	20	25	30	35	40
1975	24.1	50.4	44.6	22.8	7.9
1980	25.2	49.0	41.1	20.6	10.4
1985	22.2	53.0	39.9	17.9	8.0
1990	18.9	52.0	45.3	15.5	5.3

NOTES: Assume:

1. 3-4 years between third and higher order births.

2. Of those who have a first birth, 12% have a fourth birth.

3. Of those with a first birth at 20, 10% have a fourth birth at 30 or later and so have a child < 5 at 35.

a. % of all first births by age 20 and to those 20 = 28.2%
b. % of all first births between 20 and 25 to those 25 = 17.5%
c. % of all first births between 25 and 30 to those 30 = 10.5%

so: of those with a first birth by 20, 3.4% had a fourth at 30 or later. 20-25 = 2.1% 25-30 = 1.3%.

projections: one assuming relatively high fertility; one, moderate; and one, low fertility. Series II projections, which assume an intermediate level of childlessness and timing of childbearing, were used throughout for our calculations. The basis for Series II projections of first births were young women's own expectations for their completed family size and the Census Bureau's adjustments for involuntary childlessness. The ultimate proportion of women who would have at least one birth was set at 85 percent. The high and low fertility series assumed that 90 percent and 75 percent, respectively, of all women would have at least one birth. This variation is not large, and shifts within this range are unlikely to have substantial consequences for rates of female labor force participation.

Examination of the most recent data on birth expectations (U.S. Bureau of the Census, No. 308, 1977a) indicates that no changes have occurred since the Census Bureau projections of first births were compiled. But most of the births in the years to 1990 will be contributed by women who are now ten to nineteen years old. We know little about the birth expectations of these future

mothers and even less about what their actual childbearing patterns will be. The Census Bureau projections used here implicitly assume that these young women will behave about as their older sisters are currently behaving. As we know from past experience, this need not be the case. The record low fertility of today may change rapidly and dramatically to a record high fertility of tomorrow as it did in the baby boom following World War II. In fact, several demographers are predicting just such an occurrence (Easterlin, 1978). Easterlin anticipates another baby boom of the magnitude of the one that occurred twenty to thirty years ago. However, even in the event that another surge in fertility does occur, it is unlikely that rates of childlessness will fall much below 10 percent (the proportion used in the Census Bureau high-fertility projections--a proportion slightly higher than that during the post-war baby boom). Additionally, the boom which Easterlin expects should, according to his reasoning, not materialize before 1985 to 1990 when the members of the cohorts born in the period of low birthrates (from the mid-1960s to the present) reach childbearing age. Thus, the proportion of adult women with at least one child appears unlikely to change dramatically before 1990, and the projections of first births used in our calculations appear reasonable.

Although the proportion of women who eventually become mothers does not appear likely to change greatly by 1990, a substantial increase in fertility such as that predicted by Easterlin may result from changes in timing of childbearing or in completed family size. A decrease in the mean age at which women bear their first child, or a modest increase in the average number of children borne, could in the short run send fertility rates skyrocketing. It was argued earlier that a later average age at first birth should increase labor force participation of mothers. A decrease in the age at entry into motherhood could similarly act to decrease participation. Such a shift to younger childbearing, if it does occur, appears unlikely to happen before the mid-1980s and so should not have a significant impact on female labor force participation rates before the late 1980s, the end of the period with which we are concerned. Any increase in completed family size that might accompany a baby boom probably would be modest, say from slightly over two to slightly over three children. This extra child may keep some women from reentering the labor force as soon as otherwise, but should have little impact beyond that. Thus, an increase in the average number of children per family should have little effect on female labor force participation rates.

To summarize briefly, the evidence evaluated here indicates that: (1) changes in marital status are unlikely to have any substantial impact on women's labor force behavior, and (2) changes in the presence or number of children will have at most modest implications for market work by women. However, profound shifts in the effects of marriage and motherhood on female labor force participation appear to have occurred in the recent past and probably will continue into the future. The inhibiting effect of both marital and child status in employment of women appears to be diminishing.

APPENDIX B. THE RECENT ACCELERATION OF FEMALE EMPLOYMENT GROWTH AND ITS IMPLICATIONS FOR PROJECTIONS THROUGH 1990: INSIGHTS FROM A COHORT MODEL

In view of the uncertain macroeconomic climate that has characterized the 1970s, it is surprising to find that female labor force participation and employment rates have increased more rapidly in this period than during the 1960s. And this, despite the fact that the earlier period was marked by the longest cyclical upswing on record, culminating in tight, essentially full-employment labor markets at the end of the decade. As a result of this accelerated growth, trend extrapolations of the female labor force have tended to err on the low side, and in pursuit of more accurate projections (as well as greater theoretical understanding) a number of investigators have sought to measure and characterize the changes that have occurred (see Perry, 1977; Smith, 1977a, b; Sum, 1977; Wachter, 1977b).

Such is also the goal of this appendix. However, by contrast with the work of others, my calculations are based upon a single-year-of-age cohort model, previously estimated for the period 1957-1968 (see Farkas, 1977). By re-estimating this model for the 1969-1976 period, I am able to provide an explicit measure of the changed behavior of younger birth cohorts of American women. And by combining these estimates with information concerning recent fertility trends, I am able to provide detailed labor force projections for the coming decade. Of course, the importance of such projections for the estimation of potential GNP is well known (Clark, 1977b; Eckstein, 1977; Perry, 1977; Wachter, 1977a). By using a cohort model to explore the dependence of these projections upon a variety of assumptions regarding stability and change in current patterns of labor force growth, I hope to provide both a technical and a substantive contribution to work in this area. (For a discussion of the desirability of single-year-of-age cohort models of labor force behavior, see Wachter, 1977b, p. 11.)

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Previous Results

In demographic terms, "rising participation by teenagers and women has been the outstanding and surprising feature behind the rapid growth of the labor force in the last decade" (Perry, 1977, p. 13). Seeking to measure these trends, Perry introduced a time-trend dummy variable into his regression calculations to predict, separately by age and sex, the over-time behavior of participation rates. This variable, T67, is coded zero before 1967, one in 1967, and rises by one each year thereafter. The results were as follows:

> For both sexes in the groups aged 16-24 and for women in the groups ages 25 to 44, a statistically significant and quantitatively important speedup in the trend of participation rates is found using the 1967 time dummy. For teenagers and women aged 25 to 34, this acceleration is a strikingly large 3 to 4 percent a year (on a base of roughly 0.5 for participation rates in these groups). Men 25 to 64 and women 45 and over show a statistically significant slowing in participation rates using the 1967 time dummy. The net result of the time trends on participation rates over the last ten years is shown in the last column of Table 1. Sharply rising trends are estimated for women of all age groups between 16 and 44, with the average annual rate of increase ranging between about 2½ and 4 percent (Perry, 1977, p. 15).

Examining the results of Perry's regression in detail, we find that accelerated growth is strongest among younger women; the regression coefficients for T67 are as follows: .038 for women age sixteen to nineteen, .023 for women age twenty to twenty-four, 0.34 for age twenty-five to thirty-four, .018 for age thirty-five to forty-four, and negative values for age forty-five and above. Of course, for purposes of projection, the key issue is whether these patterns can be expected to continue into the near future. Michael Wachter feels that they will not, basing his prediction on a relative income, cohort model of the determinants of female labor force participation.

In Wachter's model (1977b), the recent accelerated increase in the participation rates of young women is due to their membership in baby-boom cohorts. When these oversized cohorts began to compete for places in an inflation-prone, hesitantly expanding economy, they experienced a sharp decline in relative (real) income. In response, married women from these cohorts entered the labor force at a record rate. (For evidence that the acceleration of female participation is largely due to the changed behavior of married women, see Smith, 1977a). Therefore, according to this view, as women from smaller, post-1960 birth cohorts enter the labor force in the years ahead, we can expect the accelerated participation rate growth at younger ages to slow (and perhaps even reverse), while at the same time the aging of the

baby-boom birth cohorts causes an acceleration in participation rate growth at older ages.

Guided by these results and conjectures, the goal of this appendix is to explore alternative projections under a variety of assumptions concerning the rate and pattern of future growth. First, however, our (previously estimated) cohort model must be put into usable form.

Refitting the Cohort Model, 1957-1976

The model in Farkas (1977), fit to annual, single-year-of-age white female employment rates for the period 1957-1968, took the form

$$E = .3539 - .9627U + \sum_{j=16}^{60} a_j A_j + \sum_{k=1900}^{1949} b_k C_k + e$$

where U denotes annual, age-specific unemployment rates, the A_j are dummy variables for age and the C_k are dummy variables for birth cohort. As it stands, this model is an excellent description ($R^2 = .99$) of employment rates calculated from Social Security Administration (SSA) records for the period 1957-1968. However, since the only available data for subsequent years are from BLS and are reported by age groups (rather than by single-year-of-age), some modifications are in order.

To begin with, the model must be modified to conform to BLS as opposed to SSA employment counts. Accordingly, the cohort model predictions for 1957-1968 were aggregated according to the age groupings used by BLS, and were then adjusted (by multiplicative constants, one for each age group) to best fit the BLS data. (The technical problems involved in this and subsequent calculations were greatly eased by the use of TSP, the "Time Series Processor" of the Yale Economics Department, current version by Jon K. Peck.) The resulting six constants then became a part of all future projections. (Not surprisingly, the only really large adjustment here is for substantial SSA underenumeration of employed sixteen- and seventeen-year-olds.)

With the cohort model thus adjusted to BLS data for the 1957-1968 period, we are ready to compare the model predictions with BLS reports for the years 1969-1976. First, however, one further modification is required. The model used to generate these predictions will function as a baseline model against which the acceleration of cohort employment rates will be measured; accordingly, the model has been modified so that the cohort effects for the years before 1908 and after 1941 change smoothly at a rate of 0.6 percent per year. This was done since the lack of twelve full years of SSA data for these cohorts

casts some doubt on the correctness of their associated effect estimates as a basis for extrapolation. Thus, the estimated effects for these cohorts have been replaced by the overall average inter-cohort trend. (The value of 0.6 is a quite reasonable summary of past experience. Nevertheless, our projection results are not overly dependent upon it--values between 0.4 and 0.8 yield substantially similar results to ours.)

The results of this calculation are shown in Table B-1. Here, we find that in general--and without fail for the prime age groups (age twenty to forty-four)--the cohort model underpredicts white female employment during this period. The magnitude of these underpredictions increases with successive years, reaching as high as 1,258,000 for women age twenty-five to thirty-four in 1976, and these underpredictions exhibit a pattern in which the rate of change of the younger age group (age twenty to twenty-four) is at first more rapid, but slowed in 1976, whereas underpredictions for the next older age group (age twenty-five to thirty-four) at first increased slowly, but accelerated after 1972.

The implication of these results--that the rate of female employment growth for age twenty to forty-four has accelerated since 1968--is, of course, consistent with the findings of Perry cited above. Accordingly, the failures of prediction in Table B-1 will serve as a basis for the estimation of this change in cohort terms. The procedure is as follows. Following Perry, we have introduced a trend term, in this case a cohort effect, T1941, which is zero before 1941, one in that year, and increases by one for each year thereafter. (Clearly the choice of 1941 as the beginning year for the measurement of the accelerated trend is somewhat arbitrary. However, since cohort effects appear to increase most rapidly about this time (see Farkas, 1977, Figure 2) and since older cohorts do not display dramatic increases in Table B-1, it seems a reasonable choice.) In addition to this trend term (which measures the extent to which cohort employment growth exceeds 0.6 percent per year), we introduce dummy variables to account for changes in the age/employment profile. (It should be noted that Perry is predicting labor force participation, whereas our dependent variable is the size of the employed labor force, usually 92 to 96 percent of the total labor force. Since unemployment rates during the 1970s have been considerably higher than those of the 1960s, we do not expect to estimate as rapid an acceleration of the upward trend as Perry does.) The regression results are shown in Table B-2.

TABLE B-1

Cohort model prediction errors (obs-pred), 1969-1976
(The scale is in units of 1,000. Observed values in parentheses.)

	Age					
	16-17	18-19	20-24	25-34	34-44	45-54
1969	-237 (962)	-116 (1476)	273 (3781)	26 (4327)	124 (4891)	-273 (5509)
1970	-134 (1011)	- 75 (1493)	330 (3955)	135 (4536)	261 (4891)	-228 (5582)
1971	-105 (1007)	- 51 (1503)	324 (4048)	169 (4656)	268 (4834)	-287 (5586)
1972	- 59 (1104)	- 3 (1646)	437 (4255)	267 (5184)	271 (4898)	-411 (5605)
1973	-106 (1207)	- 7 (1748)	546 (4516)	460 (5749)	290 (5043)	-499 (5624)
1974	- 60 (1257)	60 (1801)	655 (4651)	701 (6232)	421 (5178)	-412 (5700)
1975	31 (1200)	105 (1770)	800 (4701)	1069 (6768)	567 (5172)	-345 (5543)
1976	- 47 (1242)	122 (1863)	814 (4890)	1258 (7141)	648 (5476)	-386 (5572)

TABLE B-2

Regression analysis of cohort model prediction errors, 1969-1976.

	Coefficient	t-statistic
Constant	3.33	8.3
T1949	1.19	9.2
D16-17	-23.79	-10.8
D18-19	-20.07	-9.1
D20-24	-8.27	-5.2
D25-34	-3.43	-4.6
D35-44	0.00	-
D45-54	-6.27	-11.8

R^2 = .92
SEE = 119.8
F(7,47) = 78.8

Here we see that the overall fit is quite good (R^2 = .92) and that each of the independent variables is significant. The time trend dummy (T1941) has a coefficient of 1.19, indicating that, on average, cohorts born after 1940 increased their employment rates by 0.6 + 1.19 = 1.8 percent annually. We thus see that Perry's estimates of a 2.5 to 4.0 percent annual growth in the female labor force during this period are the result of approximately equal contributions by the employed and the unemployed labor force.

Continuing our examination of Table B-2, and combining the dummy-variable coefficient estimates with that for the constant term, we see that, by comparison with the previously estimated age/employment profile, that of the 1970s shows relatively little change in the prime age groups (twenty to fifty-four), but a significant decline in the relative employment rates of young white women (age sixteen to nineteen). More specifically, we find that the employment rate of women age thirty-five to forty-four increased by three percentage points, that of women age twenty-five to thirty-four remained constant, that of women age forty-five to fifty-four and twenty to twenty-four decreased by, respectively, 3 and 5 percent, and that of women under twenty years of age decreased by 17 to 20 percent.

These results are of particular interest, because while they parallel previous findings, no previous investigator has had a single-year-of-age cohort

model to serve as the framework for calculations of change. We thus see that, insofar as the acceleration of white female employment in the 1970s is concerned, this can be accounted for by the rising cohort trend, with relatively little distortion to the previously calculated age/employment profile. (The only significant exception to this statement occurs at very young ages--a group hit very hard by the tight labor markets of the 1970s.)

This finding of an accelerated cohort trend, combined with Smith's (1977a) report that most of the recent female labor force growth is attributable to the increased participation of married women, supports Wachter's (1977b) interest in explaining the recent rapid growth in female participation rates with a relative income model in which the key variable is relative cohort size. However, the proper specification of such a model raises a number of difficulties. These, and the alternative projections which they suggest, are the subject of the next section.

Specifying Cohort Projection Models

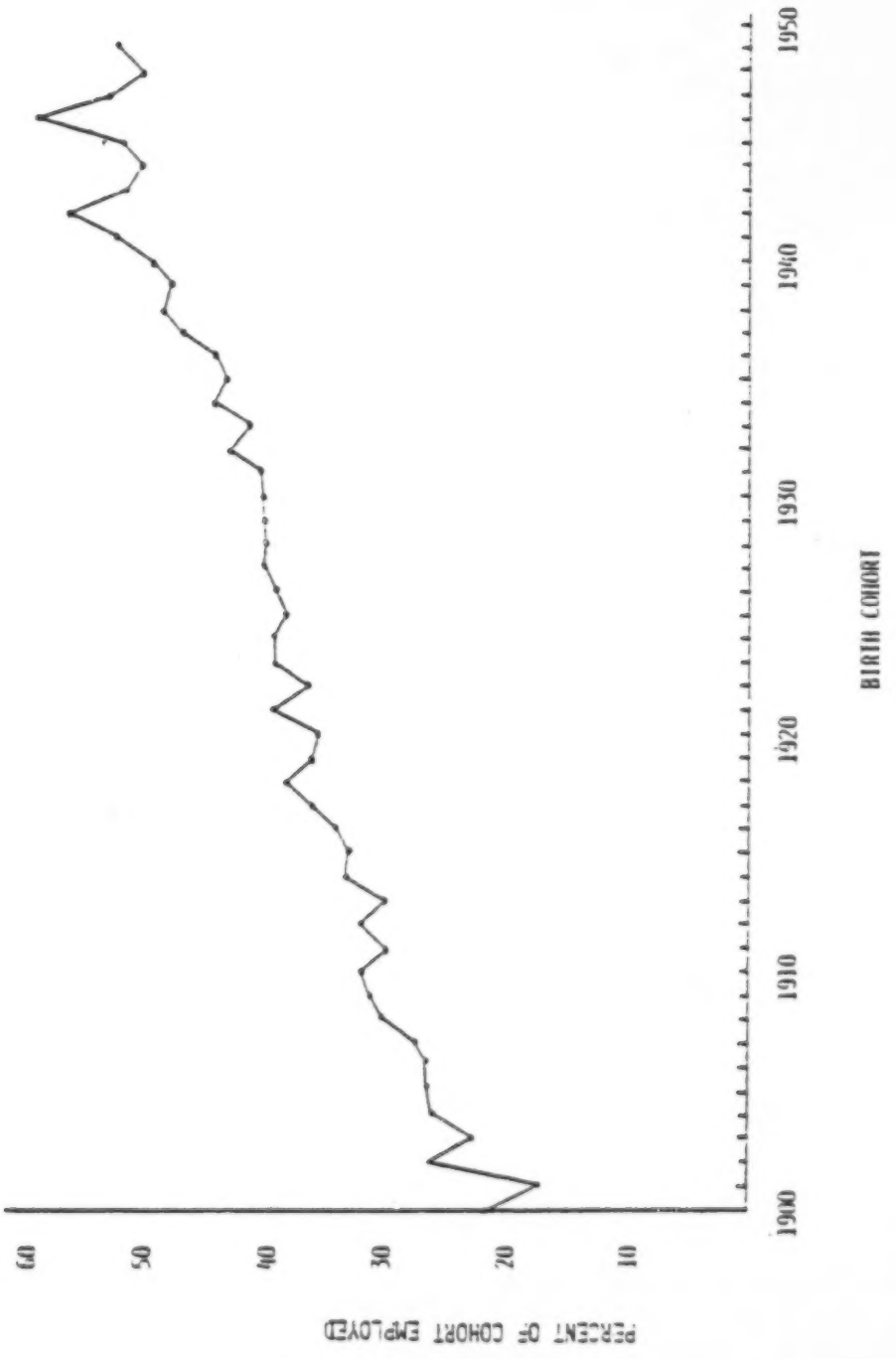
For purposes of projection, the most important issue is whether or not to project indefinitely into the future the rapid acceleration in cohort effects which we have already observed for the post-1941 birth cohorts. Or, following Wachter, should we expect that as smaller birth cohorts enter the labor market, the accelerated female labor force growth at young ages will slow or even reverse? Since we cannot know the answer to these questions, we have prepared projections under a variety of assumptions concerning the behavior of post-1941 birth cohorts. The lower boundary for these is set by the remarkably consistent upward trend calculated for the 1900-1941 births cohorts (see Farkas, 1977). This trend is shown in Figure 1. (The values plotted here represent cohort means, adjusted via regression for the effects of age and age/period specific unemployment.)

Recalling that the upward trend which is so much in evidence here predates the women's movement and the concomitant changes in sex roles which have recently been occurring, the average growth rate of 0.6 percent per year experienced by these cohorts seems a sensible lower bound for the intercohort change we ought to expect in the years ahead. Accordingly, this will serve as our baseline model for projection purposes ("steady growth, low rate").

In a similar vein, recently observed growth at 1.8 percent per year provides a reasonable upper boundary for what is to be expected in the years ahead--continued growth at this rate will rapidly lead to female participation

Figure 1. Cohort Effects Upon White Female Employment, 1900-1948

Source: Farkas, 1977.



rates in excess of 90 percent. This, then, will be the upper boundary model ("steady growth, rapid rate").

The remaining model is Wachter's relative income model, in which the population age structure at the time a female birth cohort enters the labor force is taken to be an important determinant of the cohort's participation rate. This age structure variable, measured as the relative share of the population age sixteen and over which is between the ages of sixteen and thirty-four in the year the cohort is twenty years of age, was calculated for the 1941-1976 birth cohorts. (Values of this variable for post-1956 cohorts are derived from Census population predictions.) The ratio rises from a low of .357 for the 1941 cohort to a peak of .439 for the 1961 cohort and then declines to .351 for the 1976 cohort when it enters the labor force in 1996.

It is not an easy matter to decide the way in which this variable should be used to parametrize cohort effects. Thus, we may believe that the change in women's roles during this century has been strong, and is now so strongly reinforced by the women's movement that the cohort size variable can merely effect a small acceleration or deceleration in what can be expected to be a continuing positive rate of increase in female participation rates, most likely at an average rate equal to or exceeding 0.6 percent per year for the next twenty to thirty years. Or, we may follow Wachter in giving a much stronger role to the cohort size variable and predicting that intercohort change will slow or cease altogether for the post-baby-boom cohorts.

In my view, the results of Figure 1 favor the former interpretation. Accordingly, for projection purposes I have specified a model in which the relative cohort size (age-structure) variable parametrizes the movement of intercohort change between 0.6 percent for the 1941 birth cohort and 1.8 percent for the cohorts born around 1960. With this model we can expect a deceleration in the rate of intercohort change as the post-baby-boom cohorts come of age, but only a deceleration in a positive rate of increase, so that participation rates for the cohorts born in the 1970s will still be increasing by 0.6 percent when these cohorts come of age in the 1990s. This model provides some of the features of Wachter's model, but, at least for the 1980-1990 period, produces higher female labor force growth projections. Indeed, we shall see that over this period, the results of this model are not all that different from those of the "steady growth, rapid rate" model.

Labor Force Projections: 1980, 1985, 1990

Table B-3 displays projected employment rates, counts, and employment count ratios (a measure of cross-sectional age structure) for each of our models under the assumption that unemployment rates continue at their 1976 levels over the next fourteen years. (Projections with 1966 unemployment rates yielded similar patterns.)

Looking first at the Model I projections (steady growth at 0.6 percent per year for the post-1941 cohorts), we see that by 1990 employment rates have reached 52.4 percent for those age twenty to twenty-four, 50.4 percent for those twenty-five to thirty-four, 64.1 percent for those thirty-five to forty-four, and 63.5 percent for those forty-five to fifty-four. (The older ages show a more rapid increase from 1980 to 1990, since our estimated cohort effects for those born between 1930 and 1941 display an upward trend in excess of 0.6 percent per year (see Figure 1).) These employment rate projections lead to labor force participation projections which are clearly on the low end of what is to be expected--and, as we shall see, both the BLS and Wachter's projections are above these.

Of course, the employment count projections are strongly affected by the decline in the absolute number of births after 1960. Thus we see that between 1980 and 1990 the projected number of employed twenty- to twenty-four-year-olds declines, despite absolute increases at the other ages and a projected rising employment rate for the twenty- to twenty-four-year-olds. For this ten-year period, the total projected employment increase is 6,442,000, and this increase is accompanied by a significant aging of the employed labor force. For the employment count ratios (the ratio between those at a given age and those age twenty-five to thirty-four) decline from .59 to .43 for those age twenty to twenty-four and increase from .89 to 1.16 and from .79 to .82 for those age thirty-five to forty-four and forty-five to fifty-four, respectively. (Ratios are used in place of percentages here since our population, with ages over fifty-four omitted, does not fully represent all those of working age.)

The projections derived from Model II (steady growth at 1.8 percent per year) are, of course, higher than those of Model I, yet the two sets of calculations do have certain features in common. These include almost identical predictions for the age group forty-five to fifty-four, employment count increases whose growth at the young ages is slowed by the post-1960 fertility decline, and employment count ratios which indicate an aging of the employed labor force. Employment growth with Model II is 10,086,000 for the decade of

TABLE B-3

Employment projections with three cohort growth rates

Age group	Employment rates			Employment counts (000)			Employment count ratios[a]		
	1980	1985	1990	1980	1985	1990	1980	1985	1990
Model I: Steady growth, low rates									
20-24	.472	.498	.524	4081	4108	3688	.590	.515	.433
25-34	.447	.476	.504	6912	7970	8521	1.000	1.000	1.000
35-44	.562	.610	.641	6177	8077	9867	.894	1.013	1.158
45-54	.531	.573	.635	5495	5716	7011	.795	.717	.823
Model II: Steady growth, rapid rate									
20-24	.610	.688	.766	5279	6577	5395	.656	.564	.467
25-34	.520	.600	.685	8053	10073	11561	1.000	1.000	1.000
35-44	.568	.642	.721	6254	8544	11118	.777	.848	.962
45-54	.531	.573	.641	5495	5716	7093	.682	.567	.614
Model III: Growth rate proportional to relative cohort size									
20-24	.569	.655	.726	4925	5406	5114	.663	.581	.470
25-34	.480	.555	.645	7427	9306	10874	1.000	1.000	1.000
35-44	.563	.619	.677	6186	8204	10432	.833	.882	.959
45-54	.531	.573	.636	5495	5716	7020	.740	.614	.646

a. The employment count ratio for an age group is the group's employment as a proportion of the employment of the 25-34 age-group in the same period. The ratio for the 25-34 age group equals unity by definition.

the 1980s, and total employment for ages twenty to fifty-four is projected to reach 35,167,000 in 1990. This is 6,080,000 more than the comparable total from Model I. Of course, these estimates are designed to provide an upper boundary to growth, and are probably a good deal too high; continued growth at 1.8 percent would certainly be unprecedented. Nevertheless, they rather clearly display some of the implications of such a high rate of growth. To take just one example: according to these projections, by 1990 the employment rate for young white females will approach that of males.

As for the Model III (growth rate proportional to relative cohort size) projections, Table B-3 shows these to be rather close to those of Model II. Thus, although all three models produce almost identical estimates for the age group forty-five to fifty-four, Models II and III have much higher employment rate projections at the younger ages. This result differs from Wachter's because Model III differs (in magnitude and timing) from Wachter's model. Thus, the lesson of Table B-3 is that, at least for the 1980-1990 period, such differences in model specification completely dominate the projections. Let us see how this occurs.

The cohorts born between 1940 and 1956 experienced a steadily worsening labor market situation, which can be expected to continue at a relatively constant level for the 1957-1961 cohorts, and then to improve steadily so that the 1975 cohort will experience much the same conditions as did the 1941 cohort. Thus, in terms of a model in which this variable parametrizes the acceleration of intercohort change, we have observed an average growth rate of 1.8 percent per year for the upswing cohorts. We can therefore expect an even higher rate of growth from the 1957-1961 cohorts (coming of age in the next four years), followed by only a gradual diminution in this (rather rapid) rate of intercohort change. As these intercohort differences cumulate, the model leads to projections which, at least through the 1980s, continue to feature rapid growth, even at the younger ages. Of course, the Model II and Model III projections do diverge, but these differences become large only after 1990. We thus see that even as the effects of the baby boom begin to wane, quite rapid female labor force growth remains a distinct possibility in the years immediately ahead.

Discussion

Our three models embody rather divergent views of the possibilities for growth, and they serve to bracket the employment rates and counts we can reasonably expect to observe. Thus, on the evidence of Figure 1, our Model I

projections (steady growth, low rate) provide a rather firm lower boundary, one embodying a growth rate which must surely be bettered in an era of changing sex roles (for further discussion, see Waite, Forthcoming). Similarly, Model II embodies a growth rate of an unprecedented (large) magnitude, when measured over any extended length of time. It therefore seems unlikely that this rate will be exceeded in the years ahead. As for Model III, it might surely be claimed that it is biased toward rapid growth. Yet its assumptions are not unreasonable, so that it may be viewed as a useful comparison to Wachter's more conservative projections with a related model.

In order to compare more explicitly my results with those of others, Table B-4 shows the labor force participation rates and counts implied by the above projections, and Table B-5 shows the results reached by BLS and by Michael Wachter.

Table B-5 shows rather clearly the differences between an age-specific, trend extrapolation model with (somewhat arbitrary) downward tapering (the BLS approach) and a relative income cohort model. Thus the BLS model involves relatively rapid participation growth at the younger ages, accompanied by slower growth at the older ages, whereas the opposite is the case in Wachter's projections. Comparing these to the results of Table B-4, we observe that for ages twenty to thirty-four, both the BLS and Wachter's predictions are above those of Model I, an outcome which is also the case for Wachter's projections for the age group thirty-five to fifty-four. (It seems very likely that the BLS estimates for the older age groups are too low.) We also observe that the Table B-5 projections are, in general, below those of Model II. (The only exception is Wachter's high estimate for the age group forty-five to fifty-four.) The Model II estimates have, of course, been constructed to serve as (potentially unrealistic) upper boundaries, so that the (approximately) 10 percent gap (at younger ages) between these projections and those of Wachter and BLS serves as a rough estimate of the most that could be expected from a continuation of recent trends. The Model III estimates are above those of BLS and Wachter, although often by no more than six percentage points. Certainly this model has also been biased toward growth, yet these results provide at least some support for the possibility that we may once again be underestimating the potential for female labor force growth (see Fullerton and Flaim, 1976; Sum, 1977; Smith, 1977b).

Thus, we have seen that cohort-based extrapolation is feasible and is probably to be preferred to the extrapolation of period-specific rates. In

TABLE B-4.

Participation predictions

Age group	Participation rates 1980	1985	1990	Participation counts (000) 1980	1985	1990
		Model I: Steady growth, low rate				
20-24	.526	.555	.584	4555	4584	4116
25-34	.484	.515	.546	7480	8626	9222
35-44	.597	.648	.681	6558	8574	10474
45-54	.559	.603	.668	5784	6016	7380
		Model II: Steady growth, rapid rate				
20-24	.681	.768	.855	5892	6336	6021
25-34	.562	.650	.741	8716	10901	12511
35-44	.603	.682	.765	6640	9070	11802
45-54	.559	.603	.675	5784	6016	7467
		Model III: Growth rate proportional to relative cohort size				
20-24	.635	.731	.810	5496	6033	5708
25-34	.519	.600	.698	8038	10071	11768
35-44	.598	.657	.718	6567	8709	11074
45-54	.559	.603	.669	5784	6016	7390

addition, we have begun to confront some of the issues which must be resolved if we are to move in the direction of more accurate cohort-model specifications. And, as a result of this work, I am coming to believe that current projections still underestimate the potential future (short-term) growth of the female labor force. As the Depression had a strong influence on the post-1930 development of economics, so we might expect that the problems caused by the aging of the baby-boom cohorts--problems which extend behond labor force projection to questions of educational planning, social security administration, etc.--will help to shape future work by sociologists, demographers, and economists. Certainly a good deal more needs to be done before cohort models are in everyday use.

TABLE B-5

Female labor force participation rate projections by the BLS

	BLS[a]			Wachter[b]	
Age	1980	1985	1990	1980	1985
20-24	68.4	72.5	75.2	67.0	68.6
25-34	57.4	61.2	63.5	60.6	62.2
35-44	58.3	61.1	63.0	61.7	65.5
45-54	57.1	59.1	60.3	57.4	62.8

a. Fullerton and Flaim, 1976.

b. Wachter, 1977.

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